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August 12, 1941

Telephone Number TUcker 2571

World's Deepest Electrically Drilled Oil Well

By C. F. Forsberg
Honolulu Oil Corp.

The Honolulu Oil Corporation has been drilling oil wells by means of electric motors for a good many years; in fact, the company originally drilled with cable tools for several years in their properties adjacent to Bakersfield, California. All told, about 125 wells have been drilled with electric power, the large majority by rotary, so the Company is no stranger to electric operation; and when it was decided to drill a deep test hole in the Buena Vista Hills Field, near Taft, California, the choice of power was electric. The company has used no other power for drilling for the past 10 years or more, since it has been found that electric operation has been quite economical as well as adaptable to drilling in all other respects. We have drilled several wells approximately 8000 feet in depth with electric equipment, but nothing any deeper excepting the well under consideration.

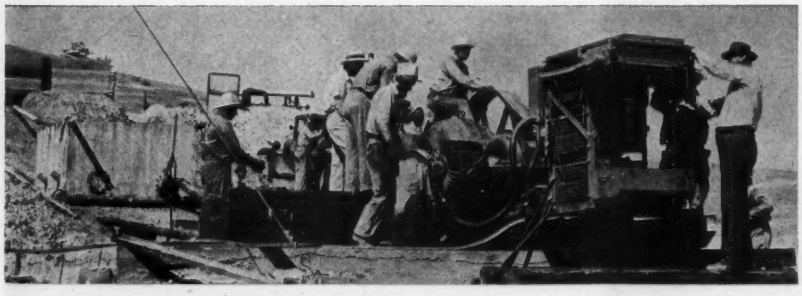
There is probably nothing very surprising about the present well other than the fact that it was drilled with equipment that is much too small for this sort of job and also that comparatively little trouble was experienced with the equipment. Originally, no particular depth was in mind when the well started, excepting that a thorough test of the oil and gas possibilities of the structure was anticipated so the ultimate depth is somewhat surprising. A standard derrick was used, 136′ in height, and only ordinary precautions were used, as would be the case with any well.

This well was drilled on Section 10, Township 32 South, Range 24 East, M.D. Base and was designated as 25-P. It attained a final depth of 14,622 ft.

On this job we used a 125 HP, variable speed, 440 volt, 8 pole motor this being direct connected to the rotary table by means of a flexible coupling. The motor and the table are set on a common base fabricated of I beams and 10″ channel irons welded together and the whole arranged to be moved as a single unit. The derrick floor was notched in to accommodate the unit; and, of course, proper covers were installed to protect the motor from any objects that might injure it in the rig. The control for this motor was installed in a small house back of the draw works, this being a manually operated reversible controller with nine points of speed control. The table was of 27½″ size and with direct connection of the motor, a maximum speed of 231 r.p.m. could be obtained at no load, with slightly lower speed when fully loaded.

The draw works was a standard job; and the motors used to drive it were two 8 pole, 440 volt, 125 HP variable speed machines direct connected by means of flexible couplings to a twin motor reduction gear which, in turn, was chained to the draw works. The gear and the motors are mounted on a common base and are moved as a single unit. These two motors are operated with oil immersed magnetic controls through a small master switch so arranged that the two motors always operate on similar points of resistance and thus divide the load equally. The controls for these motors are set in a portable house and permanently wired together; so that, in wiring up at the rig, it is only necessary to run the cables from the motors to the necessary terminals at the control house and connect same up. This means that a minimum of wiring is necessary and considerable time is saved in the original installation. It might be mentioned that the table motor

← A beautiful setting for a record-breaking deep test was provided in Buena Vista Hills for Honolulu Oil Corp. Emsco deserves a feeling of satisfaction at this view of their derrick.



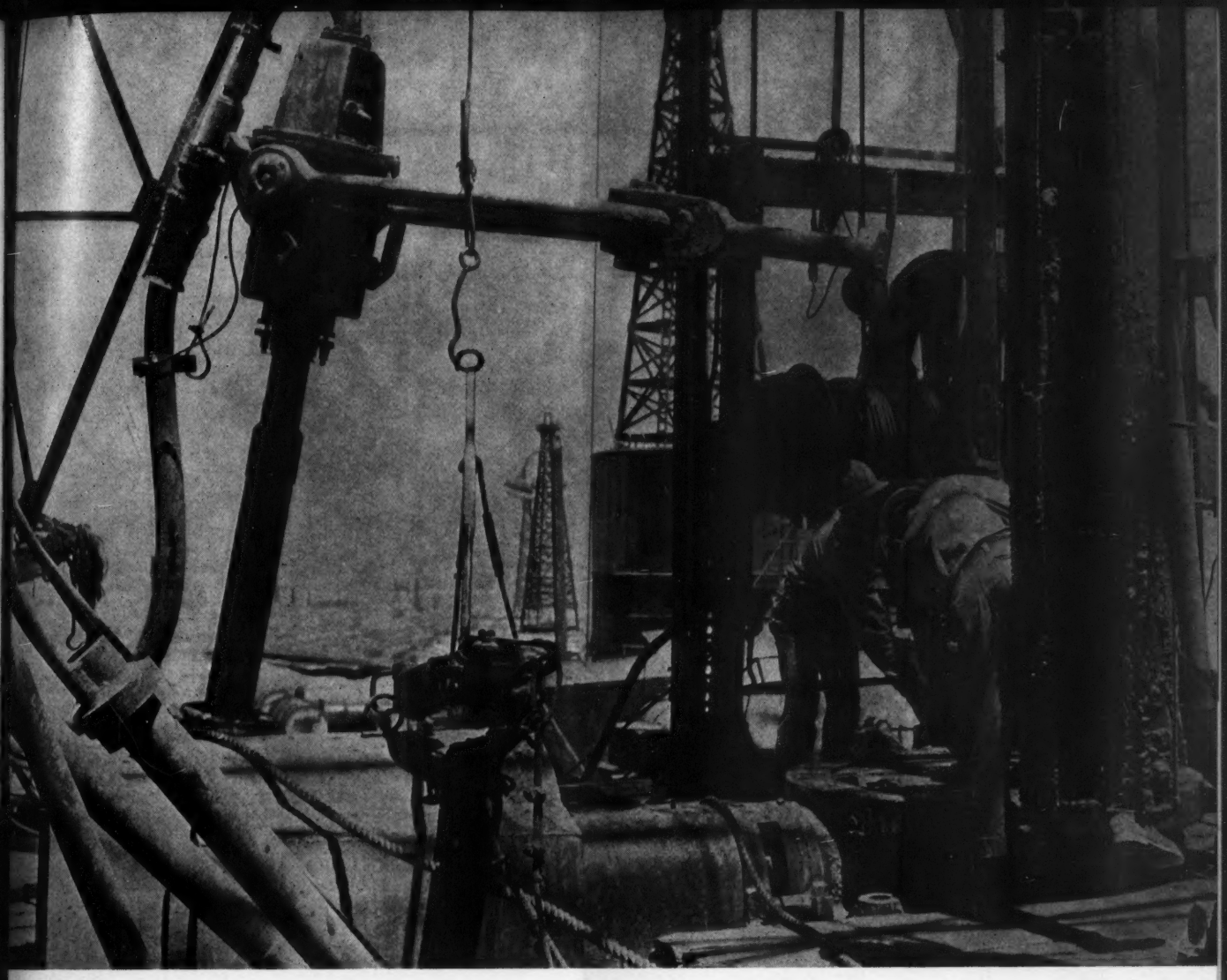
H. S. Stark, Honolulu's Taft Division Super, may be seen at the extreme right of the action pictured above. The happy men in office "shots" are, below, H. M. Van Clief, tool pusher on the record well, and above, C. F. Forsberg, the electrical engineer.

is connected to its control by means of flexible all-rubber cable and considerable time is also saved here in the wiring. It is possible to use either one or both of these motors for hoisting; and it is quite advantageous to have two motors here since if trouble develops on one motor or its control, the other can usually be used for hoisting at lower rates of speed.

We used two mud pumps in the original installation; one of these being a 7¼ x 14" power pump, the other being a 7¼ x 16" of similar characteristics. The small pump was driven by a 125 HP, 8 pole variable speed motor and a larger pump by a 150 HP 8 pole motor. In both cases manual control was used and the controllers were set immediately back of the motors so that they would be in the most accessible position. On all of these manual controls, proper motor protection is secured by means of overload trips on oil circuit breakers, as well as fused knife entrance switches. These two pumps were operated in parallel most of the time and it was possible to operate the controls so that approximately equal loads could be held on the motors. Both of these pumps are operated through tex-rope drives from the motors, the top speeds being approximately 50 RPM. These two pumps were used on the hole to about 14,000 ft., although it was known that the capacity was too small long before this depth was reached. A 7¾ x 20" pump was installed at about 14,000 ft. and this was used for the latter part of the hole. For driving this pump, two 8 pole, 125 HP motors were used, these being arranged so that the tex-rope sheaves on the motors were bolted to one large sheave on the pump. The belting arrangement allowed a speed of 50 RPM on the pump. When this large pump was installed, the two pumps originally used were held in reserve as spares.

Considerable gas was encountered in the well at various stages and it was necessary to de-gassify the mud fluid. In order to do this, a wooden flume was built at about a 45 degree angle, the top being about 30 ft. high, and a 6¾ x 14" power pump tex-roped to a 25/65 HP variable speed motor was used to pick up the fluid from the mud tanks and circulate it through the flume. This flume was constructed with suitable barriers in it that tended to break up the mud and thus de-gassify it. In order to mix mud, we use a 5 x 12" power pump driven by a gas engine, this being mounted on a portable wagon al-

Two 8-pole, 125-h.p. Westinghouse motors, direct connected with Union Tool (National) reduction gear, gave far beyond their rated capacity in operating the Emsco unitized drawworks.



The E. M. Smith "steel re-inforced" hose easily handled the high pressure mud required in putting down the record hole. The swivel was Oil Well's, as was the 27½-in. "Oil Bath" rotary table.

lowing the entire unit to be moved as a single unit. Later on, we installed another 6¾ x 14" pump driven by an 8 pole, 75 HP variable speed motor since this was of larger capacity and more suitable for the job.

The mud shaker motors were 3 HP, 3 phase, 440 volt machines with proper tex-rope drives, the shakers being so arranged that either one or both of them could be used at will. In all cases the motors and controls were of the explosion proof type, the controllers being oil immersed, since all precautions were taken to prevent any trouble due to gas.

A portable transformer bank consisting of two 300 KVA, 3 phase transformers connected in parallel was used to furnish power for the motor equipment. The primary side of these transformers take power at 11,000 volts and transform it to 460 volts and the entire unit is permanently wired together so that a minimum amount of work is necessary to connect it up on the job. A metering cabinet is included on this bank in order that necessary meters can be set for power measurements. This portable bank is mounted on an underslung wagon bed and the two transformers are set side by side with the primary and secondary sides wired through bus bars in order to make a permanent job. A set of knife disconnecting switches is used on the 11,000 volt side as well as a three pole oil circuit breaker complete with overload relays.

It might be mentioned here that the Honolulu Oil Corp. buy their power from the Pacific Gas & Electric Co. through a sub-station owned by the oil company. The power is purchased at approximately 66,000 volts and all of the low voltage distribution from this substation, which is 11,000 volts 3 phase, 60 cycles, is owned and operated by the oil company. The well was located about a mile from this sub-station and was fed through two 11,000 volt lines so that good voltage regulation was held and full power was obtained from the motors. About 510 volts open circuit voltage was held on the low side of the portable transformers at the rig.

In drilling the well, there were ammeters set in the rig to indicate to the driller a rough idea of the

Keep this List of the

WORLD'S DEEPEST WELLS

13,000 FEET TO 15,004 FEET

15,004′ Continental Oil Co., KCL No. A-2, Wasco, Kern Co., Calif., 3½" Hydril Twinpin Joints.

14,622′ Honolulu Oil Corp., 10-25P, Buena Vista, Kern County, Calif., 4½" and 3½" Hydril Twinpin Joints.

14,582′ Continental Oil Co., Proctor No. 1, Washita Co., Okla., Combination string 3½" Hydril Twinpin Joints and A.P.I. Full Hole Tool Joints.

14,051′ Continental Oil Co., KCL D-2, Strand, Kern Co., Calif., 4½" and 3½" Hydril Twinpin Joints.

14,018′ Superior Oil Co., Helbling No. 1, Rio Bravo, Kern Co., Calif., 4½" and 3½" Hydril Twinpin Joints

13,957′ Shell Oil Co., KCL No. B-87-4, Canal, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,873′ Shell Oil Co., KCL 2-A 52-13, San Emigdio Ranch, Kern Co., Calif., 4½" Hydril Twinpin Joints.

13,728′ Union Producing Co., Minnie Brown No. 1, Agua Dulce, Nueces County, Texas. No Hydril Joints used.

13,716′ Standard Oil Co. of California, KCL No. 8-B-1, Wasco, Kern County, Calif., 3½" Hydril Twinpin Joints.

13,644′ Continental Oil Co., KCL No. A-3-8, Wasco, Kern County, Calif., 5-9/16" and 3½" Hydril Twinpin Joints.

13,610′ Superior Oil Co., Calcasieu Lake, State No. 3, Cameron Parish, Louisiana, 4½" and 3½" Hydril Twinpin Joints.

13,538′ Standard Oil Co. of Calif., Elrich Community No. 1, Greeley, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,409′ Fohs Oil Co., Buckley Bourg No. 1, West Dulca, Terrebonne Parish, La., 4½" and 3½" Hydril Twinpin Joints.

13,333′ Fohs Oil Co., State Bay Baptiste No. 1, Houma, Terrebonne Parish, La., 4½" and 3½" Hydril Twinpin Joints.

13,210′ Amerada Petroleum Corp., and Stanolind Oil & Gas Co., Calcasieu National Bank No. 3-B, Jefferson Parish, La., 4½" Hydril Twinpin Joints.

13,158′ Continental Oil Company, KCL A-5-8, Wasco, Kern County, Calif., combination string ½ equipped with Hydril Twinpin Joints.

13,153′ Continental Oil Co., KCL A-4, Wasco, Kern County, Calif., 5-9/16", 4½", 3½" Hydril Twinpin Joints.

13,150′ Geo. F. Getty Co., Meyer No. 2, Wasco, Kern County, Calif., 4½" and 3½" Hydril Twinpin Joints.

13,139′ Continental Oil Company, Meyer 1, Wasco, Kern County, Calif. No Hydril Joints.

13,139′ Standard Oil Co. of Calif., Mush Rush No. 1, Wasco, Kern Co., Calif. No Hydril Joints.

13,135′ Standard Oil Co. of Calif., KCL No. 8-B-2, Wasco, Kern County, Calif., 4½" and 3½" Hydril Twinpin Joints.

13,135′ Standard Oil Co. of Calif., Mush Rush No. 4, Wasco, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,131′ Geo. F. Getty Co., Jannssen No. 1, Wasco, Kern Co., Calif., 4½" and 3½" Hydril Twinpin Joints.

13,131′ Superior Oil Co., KCL-12, Sec. 3, Twp. 30, R. 26, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,130′ Standard Oil Co. of Calif., Mush Rush No. 5, Wasco, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,130′ Standard Oil Co. of Calif., Mush Rush No. 3, Wasco, Kern County, Calif., 4½" Hydril Twinpin Joints.

13,124′ Standard Oil Co. of Calif., Mush Rush No. 2, Wasco, Kern County, Calif., 4½" and 3½" Hydril Twinpin Joints.

13,064′ Continental Oil Co. and Seaboard Oil Co., KCL C-1, Wasco, Kern County, Calif., 4½" and 3½" Hydril Twinpin Joints.

25 OF THE WORLD'S 28 DEEPEST WELLS WERE DRILLED WITH PIPE EQUIPPED WITH...

HYDRIL TWINPIN

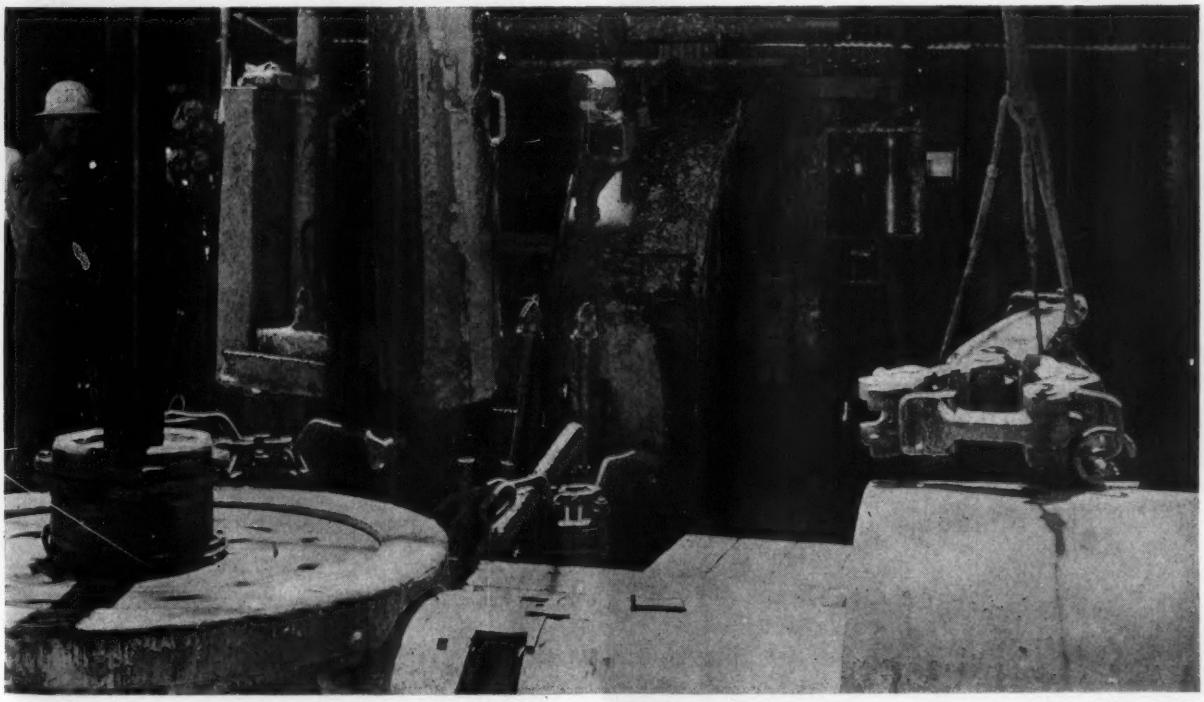
Trade Mark Reg.

DRILL PIPE JOINTS

DESCRIBED AND ILLUSTRATED IN THE COMPOSITE CATALOG

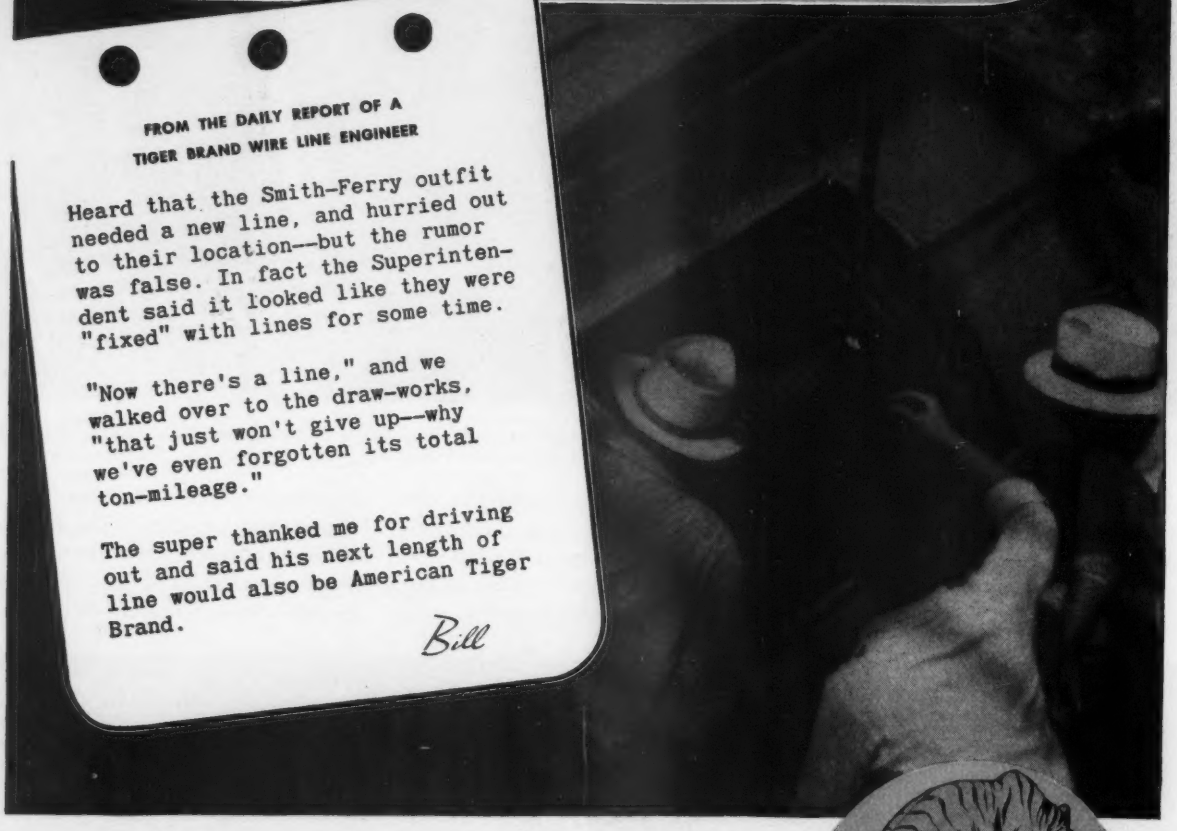
Behind the Emsco unitized drawworks may be seen the Union Tool (National) reduction gear through which connection is made with the two Westinghouse motors.

load he was pulling at all times. Those ammeters had a red line on each instrument to indicate the danger line; and in the case of the motor operating the table this was set at 225 amperes. This was also the limit set for the two mud pump motors, while the hoist motors were allowed 300 amperes. The drillers tried to observe the limits, but, instead of a danger line, these limits became the regular loads for the different motors, and in a great many cases, these limits were exceeded. It is possible to control



The kelly hides the Parkersburg hydromatic brake in this front view of the Emsco unitized drawworks. The combination of electric drive and "Oil Bath" rotary table made drilling practically silent.

"THERE'S A WIRE LINE THAT JUST WON'T GIVE UP"



FROM THE DAILY REPORT OF A
TIGER BRAND WIRE LINE ENGINEER

Heard that the Smith-Ferry outfit needed a new line, and hurried out to their location—but the rumor was false. In fact the Superintendent said it looked like they were "fixed" with lines for some time.

"Now there's a line," and we walked over to the draw-works, "that just won't give up—why we've even forgotten its total ton-mileage."

The super thanked me for driving out and said his next length of line would also be American Tiger Brand.

Bill

IF you figure you're not getting the right service out of your wire lines, call in an American Tiger Brand Wire Line Engineer — these men know how to help you stretch your wire line dollar. And they should know—they're right in the field—they run across all sorts of situations every day. They live and breathe problems such as you might have. They know how much punishment a wire line has to take, and how the men on the job can lengthen wire line life.

Next time you need help—call in a Tiger Brand Wire Line Engineer. He has no axe to grind. He's not interested in promoting one construction or grade over any other—he'll just be interested in your particular problem. Write today for complete information.

Look for the Tiger!

COLUMBIA STEEL COMPANY
San Francisco
AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
United States Steel Export Company, New York

UNITED STATES STEEL

Close-up of the veteran Link Belt shakers shows the mud experts concocting the varying mixtures of Baroid, Aquagel, Impermex, Quebracho and Tetra Sodium Pyro Phosphate. American Cyanamid supplied the chemicals.

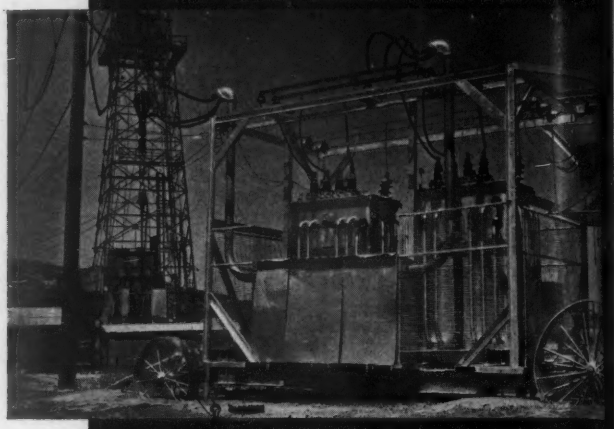
the hoist motor duty by simply shifting gears on the draw works, but is is not possible to control the table motor in a great many cases, since, simply to rotate the table in the very heavy mud fluid used, a greater current than 225 amperes is necessary. Many times the current on the table motor would run as high as 275 amperes while the mud pump motors would run up to 250 amperes. There is some control possible over the mud pump motors, insofar as power requirements are concerned, but not as

To speed up the mud mixing operation this 6¾x14 Gardner Denver mud pump, powered by an 8-pole, 75 h.p. General Electric motor, was rigged up.

Here's one for the book!

14,622 FEET OF HOLE— BY HONOLULU . . . SETS NEW WORLD'S RECORD FOR ELECTRIC POWER AND WESTINGHOUSE EQUIPMENT . . . . . .

Two 300 KVA type SCT, 3 phase Westinghouse transformers, conn in parallel. Mounted on trailer with line circuit breaker, disconnect



Two 125 h.p., 8 pole, type CW Westinghouse motors coupled to "IDEAL" twin gear on draw-works drive for hoisting.

Two 125 h.p., 8 pole, type CW Westinghouse motors driving 7¾" x 12" Oil Well Supply Company mud pump.

At the Honolulu Oil Company's now famous deep test well near Taft, California, electric power has again proved its worth. In the drilling of this deepest of all electrically drilled wells, Westinghouse is proud to have played a part.

Westinghouse, the pioneer and leading manufacturer of electric drilling equipment, brings an intimate knowledge of oil field requirements to the design and construction of these rigs. Westinghouse manufactures the complete electrical equipment, including control, and assumes undivided responsibility. Westinghouse representatives and service facilities are in the oil fields to insure perfect performance. Westinghouse equipment is engineered to the job.

Call in the nearest Westinghouse representative to discuss your drilling rig problem.

•

WESTINGHOUSE ELECTRIC & MFG. CO.

PACIFIC COAST HEADQUARTERS
SAN FRANCISCO

OFFICES IN ALL PRINCIPAL PACIFIC COAST CITIES

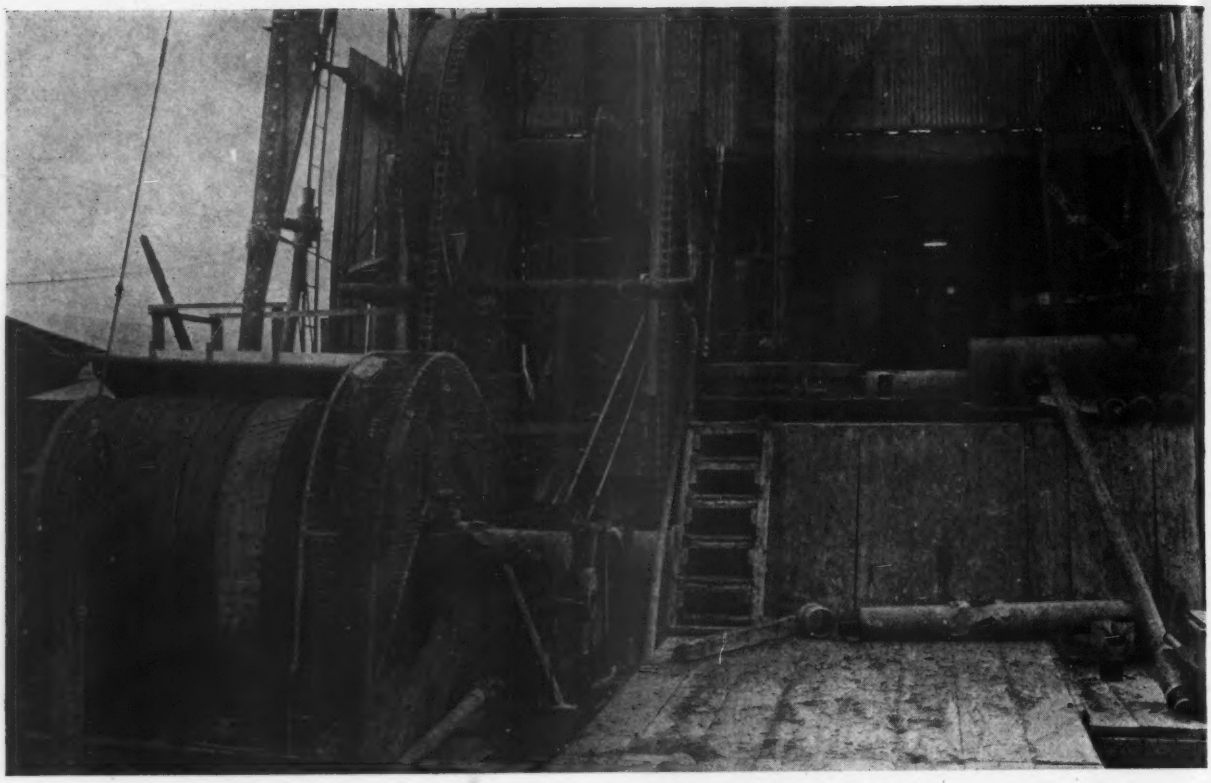
Westinghouse

In the foreground is an auxiliary mud mixing set up. The 5x12 Wilson Snyder pump is driven by a Caterpillar engine. The two 300-KVA Westinghouse transformers may be seen in the background.

much as one would like to have, since, to do the job, sufficient fluid must be circulated. When one stops to think that 155 amperes is full load current on the 125 HP motors, one can easily see what overloads the motors had to bear. Several tests were made to find out the loads at different speeds on the table, and it was found that the greater part of the load on the table motor was in simply rotating the drill pipe as the load due to the bit was quite small.

We started drilling this well on June 1, 1940 and the following figures are costs up to approximately July 1, 1941.

Setting a record for deep cementing jobs was Western Cementing Co. Victor High Temperature cement was used.



The venerable auxiliary hoist was powered by a Waukesha 120-h.p. engine in its frequent duty of handling the Reed wire line core barrel. Hughes and Reed drilling bits were used in the record breaking electric drilling job. Drill collars were Ideal, Emsco, and Baash Ross, the tool joints were Hydril.

Labor maintenance costs for the period of June 1, 1940 to July 1, 1941. This includes all servicing of equipment by electricians and all trouble jobs that have occurred. It also includes some overtime installation charges on rush jobs such as a pump installation, etc.	$ 2,436.55
Labor maintenance cost per day for above period	6.04
Maintenance cost of supplies. This includes all electric supplies for the same period as above and also includes the rewind of one rotor on a 125 HP motor	1,261.55
Maintenance cost of supplies per day as per the above	3.13
Power costs charged to the rig for the period up to June 12, 1941. This is 12½ months operation plus rigging up time of from 7 to 10 days. This period is taken as it corresponds to the meter reading period of the Power Co.....	12,901.55
Power cost per day as per above	36.14
Water costs charged to the rig for the period of June 1, 1940, to July 1, 1941	908.70

At the Honolulu deep test were C. E. Hollingsworth, Driller; Bill Greesom, P. A. Bollinger, Wess Eiland, Bob Dewar, Mud Engineer; Derrick man absent.

The Shell
SOLUTIZER PROCESS

removes the mercaptans

instead of *merely oxidizing them to disulfides*

UNLIKE commonly used methods of doctor sweetening, the Solutizer Process eliminates the mercaptans from gasoline (to negative doctor test). Through the use of Solutizer (potassium isobutyrate) this new method recently announced by Shell

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— improves INITIAL OCTANE NUMBER of many gasolines
— lowers SULFUR CONTENT
— improves INHIBITOR SUSCEPTIBILITY

Savings experienced in actual operation indicate a very short pay-out time for equipment. For information write Shell Development Co.

SHELL REGENERATIVE MERCAPTAN REMOVAL PROCESS

This method, used in conjunction with doctor treatment, removes lower boiling point mercaptans with caustic which is regenerated for continuous use. Licensed by Shell Development Company. (U. S. Pat. No. 1,943,744)

SHELL PHOSPHATE PROCESS

A process for eliminating hydrogen sulfide from butane, propane and other gaseous and liquid hydrocarbons. The method is regenerative. Operating and maintenance costs are low. Licensed by Shell Development Company.

SHELL

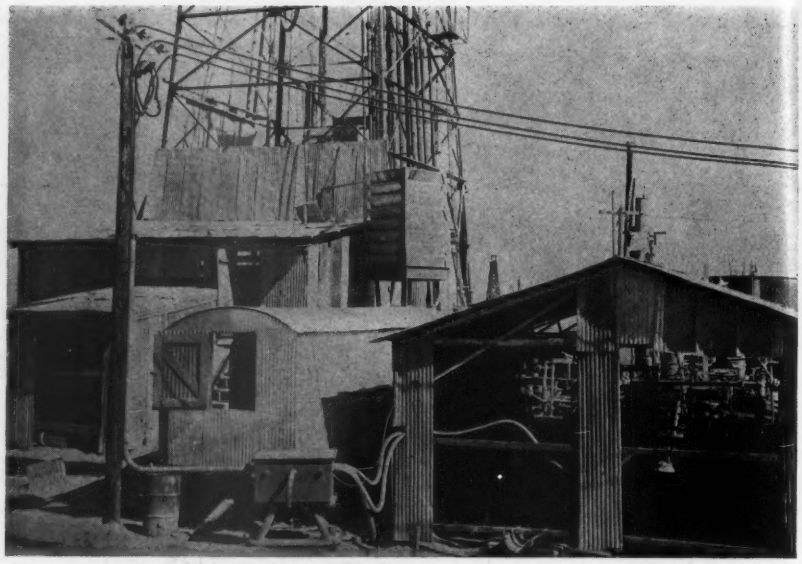
SHELL DEVELOPMENT COMPANY

100 BUSH STREET · SAN FRANCISCO · CALIFORNIA

Water cost per day as per the above	2.30
Total costs of operation per day of electric apparatus. Includes power, labor of maintenance, maintenance supplies and water	47.61

A detail of the power costs to the rig including the 30 minute maximum demand as measured by graphic wattmeter, as well as the KWH, is given in the summary below:

In checking the power figures it will be noted that the amount of KWH used after the first few months runs quite uniform since the leads were approximately the same after steady values were reached. The increase in maximum demand was due to operating two mud pumps in parallel at all times after the fifth month, as well as the addition of the de-gassifier unit which was not used at the start of the well. The maximum demand figures are those for a 30 minute interval, although the peak demands for short intervals of time may run considerably higher than these values since, of course, the meter does not register these instantaneous values.



Portability is a feature of Honolulu's heavy electrical equipment.

Month 1940	KWH	Max. demand for 30 minute period	Cost
May 11 to June 12	45,024	288	$ 523.86
June 12 to July 11	83,040	336	783.70
July 11 to Aug. 11	83,280	216	621.43
Aug. 11 to Sept. 11	104,280	312	834.77
Sept. 11 to Oct. 11	135,480	336	963.81
Oct. 11 to Nov. 12	177,192	468	1292.50
Nov. 12 to Dec. 12	196,800	468	1369.40
1941			
Dec. 12 to Jan. 11	191,760	480	1349.85
Jan. 11 to Feb. 12	198,360	480	1431.18
Feb. 12 to Mar. 12	159,600	432	1166.45
Mar. 12 to Apr. 11	194,040	495	1340.58
Apr. 11 to May 12	168,720	437	1224.02
May 12 to June 12	178,560	566	1323.95
June 12 to July 1	85,560		

The total amount of KWH used from June 1, 1940, to July 1, 1941, is 2,091,256, while the total amount of water used was 113,590 barrels. Below is a tabulation of the total amount of water used per month and the total cost figured at .008 per barrel.

Month 1940	Barrels Used	Cost at $.008 per bbl.
May	626	$ 5.01
June	13,320	106.56
July	9,213	73.70
August	5,568	44.54
Sept.	4,649	37.19
Oct.	10,546	84.37
Nov.	8,586	68.69
Dec.	9,669	77.35
1941		
Jan.	8,573	68.58
Feb.	10,033	80.26
March	11,483	91.86
April	9,720	77.76
May	11,604	92.83

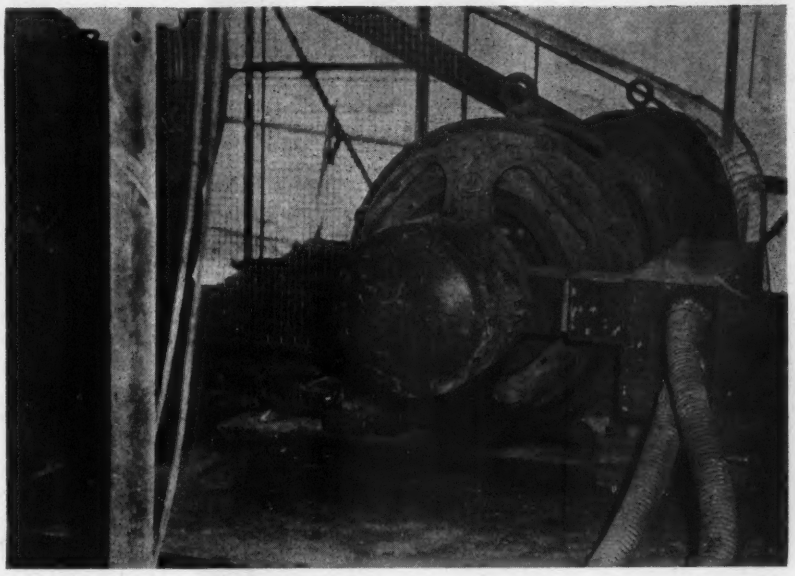
Another drilling crew on the record well takes "five": Seated are, H. W. Clippinger, D. D. Girard, and Albert Borden. Standing: J. H. Strayhorn and Ernest Kruger.

The interruptions due to power failure and failure of apparatus amount to 44 hours in the period

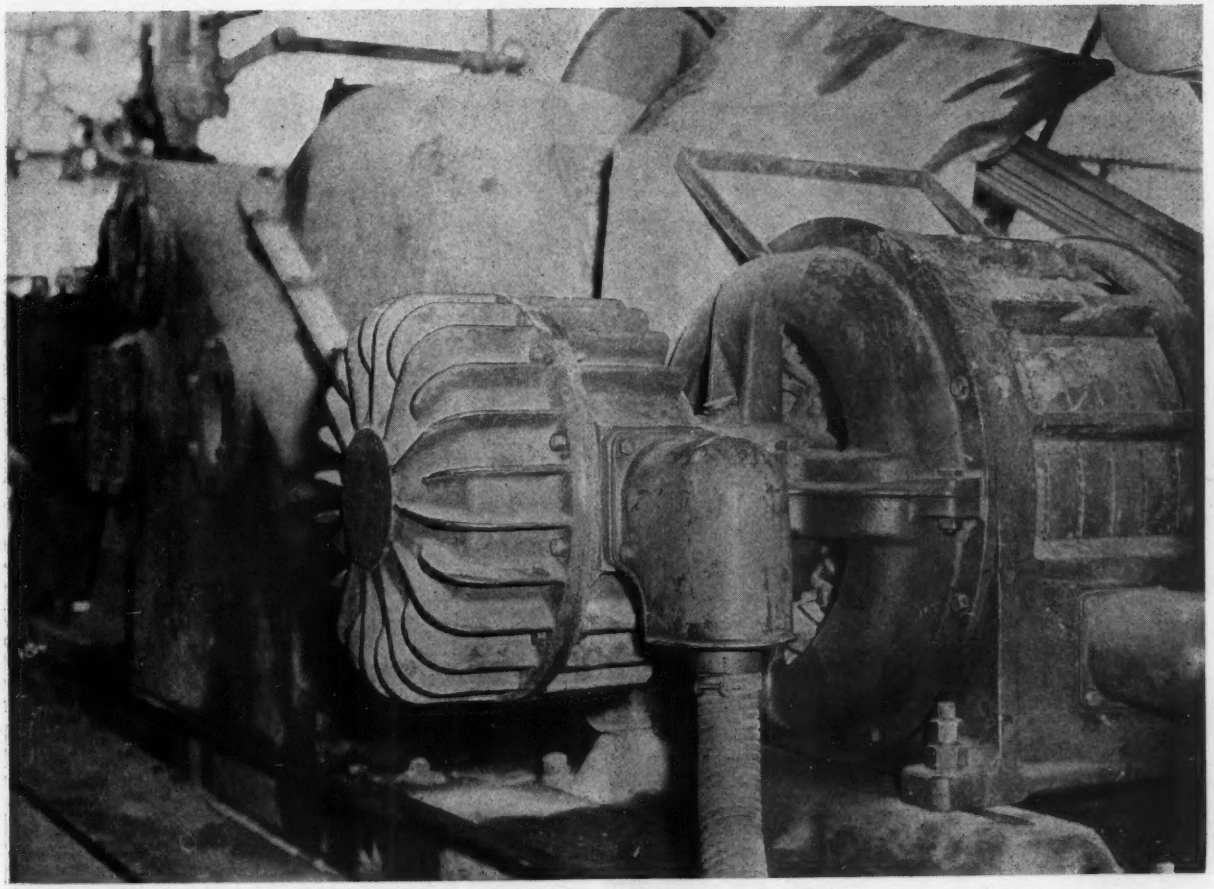
from June 1, 1940, to July 7, 1941. This means that during a total time of 8,828 hours, the time off due to power trouble was ½ of 1%. It might be mentioned here that more than half of this time was due to trouble with motors that could have been avoided if the equipment had been of the proper capacity. One rotor burnout on the table motor was encountered due strictly to overload, while another case of trouble was due to burnout of wires in the shaft of the table motor. It is believed that with larger equipment the above record could be improved upon considerably, even though this cannot be considered bad.

It might be interesting to tabulate the size of hole drilled, as it is believed that while this is the second deepest well drilled and the deepest ever drilled by electric means, it is also of the greatest bore.

Size of Hole	Size Casing	Depth		
17½"	13⅜" Cemented at	702′	12¼"	on down 3770′
14 "	11¾" Cemented at	3101′	16 "	4451′
14 "	Open hole from here	3110′	12¼"	5546′
			11⅞"	5900′
			10⅝"	12089′

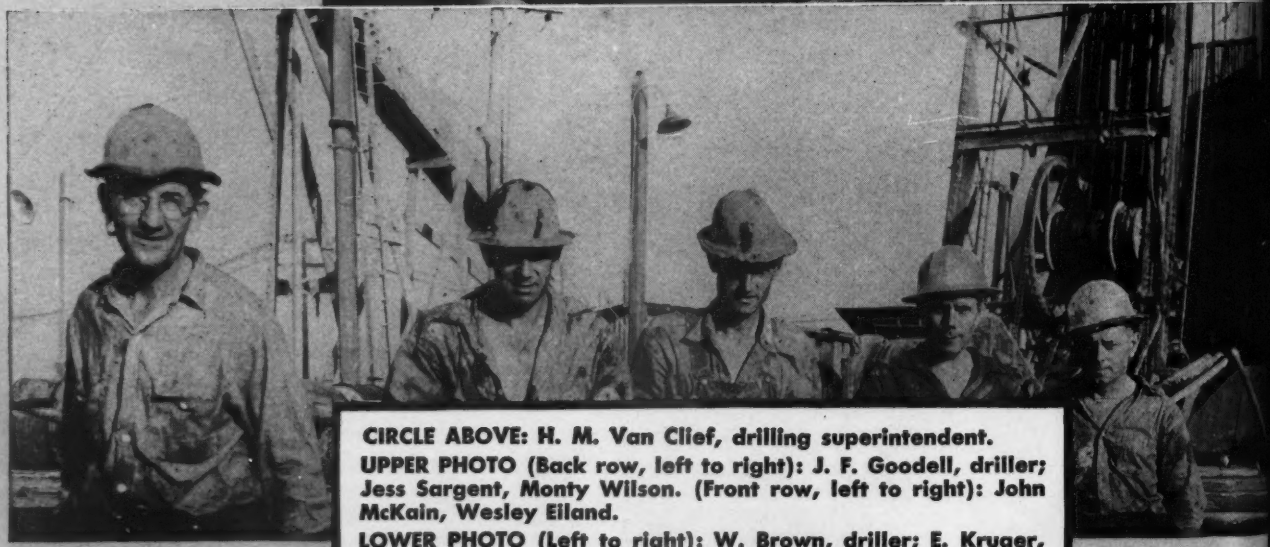


Driving the mammoth 7¾x20 Oil Well mud pump are two 8-pole, 125-h.p. Westinghouse motors.



Power for the 7¼x16 Gardner Denver mud pump was supplied by an 8-pole, 150-h.p. General Electric motor.

14,622 FEET



CIRCLE ABOVE: H. M. Van Clief, drilling superintendent.

UPPER PHOTO (Back row, left to right): J. F. Goodell, driller; Jess Sargent, Monty Wilson. (Front row, left to right): John McKain, Wesley Eiland.

LOWER PHOTO (Left to right): W. Brown, driller; E. Kruger, H. A. Brunton, Lee Schrader, W. W. Alldredge.

FOR THE VARIOUS FORMATIONS . . .

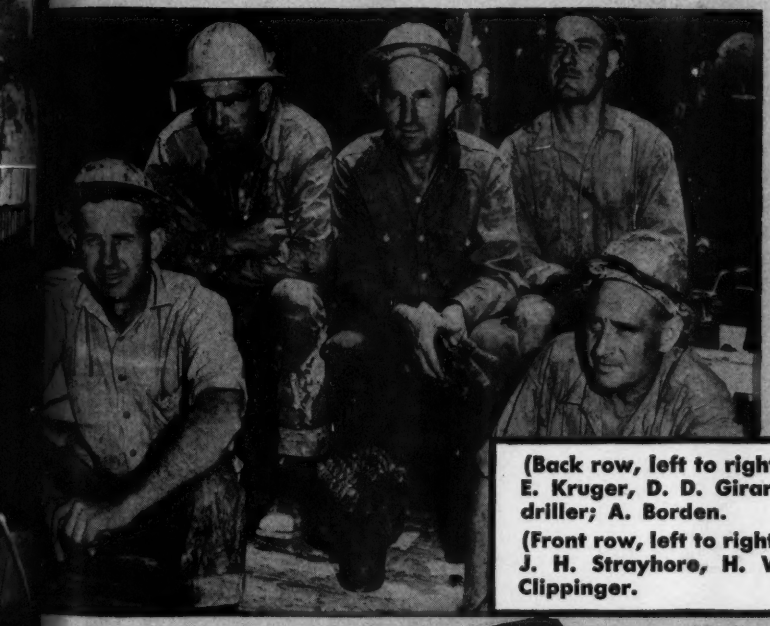
ANOTHER NOTABLE DRILLING ACHIEVEMENT

Honolulu Oil Corporation's Well No. 25-P, Kern County, California, which attained a depth of 14,622' is an achievement worthy of high acclaim . . . a tribute to the knowledge, resourcefulness and skill, not only of the officials of the Company, but of every man on the rig.

We are justly proud that Hughes Tricone Rock Bits played an important role in the drilling of this deep test.

THE FOLLOWING ROCK BITS WERE USED:

Size Bits	*Hughes Tricones*	*Other Makes*
12¼".....	9	6
11".....	1	0
10⅝".....	55	2
8⅝".....	58	15
8½".....	26	0
7⅝".....	1	0
Totals	**150**	**23**
Percentage	**86.7%**	**13.3%**



(Back row, left to right): E. Kruger, D. D. Girard, driller; A. Borden.
(Front row, left to right): J. H. Strayhorn, H. W. Clippinger.

DEEP OR SHALLOW— THERE'S A HUGHES "TAILOR-MADE" ROCK BIT

HUGHES TOOL CO.

Main Office and Plant: HOUSTON, TEXAS
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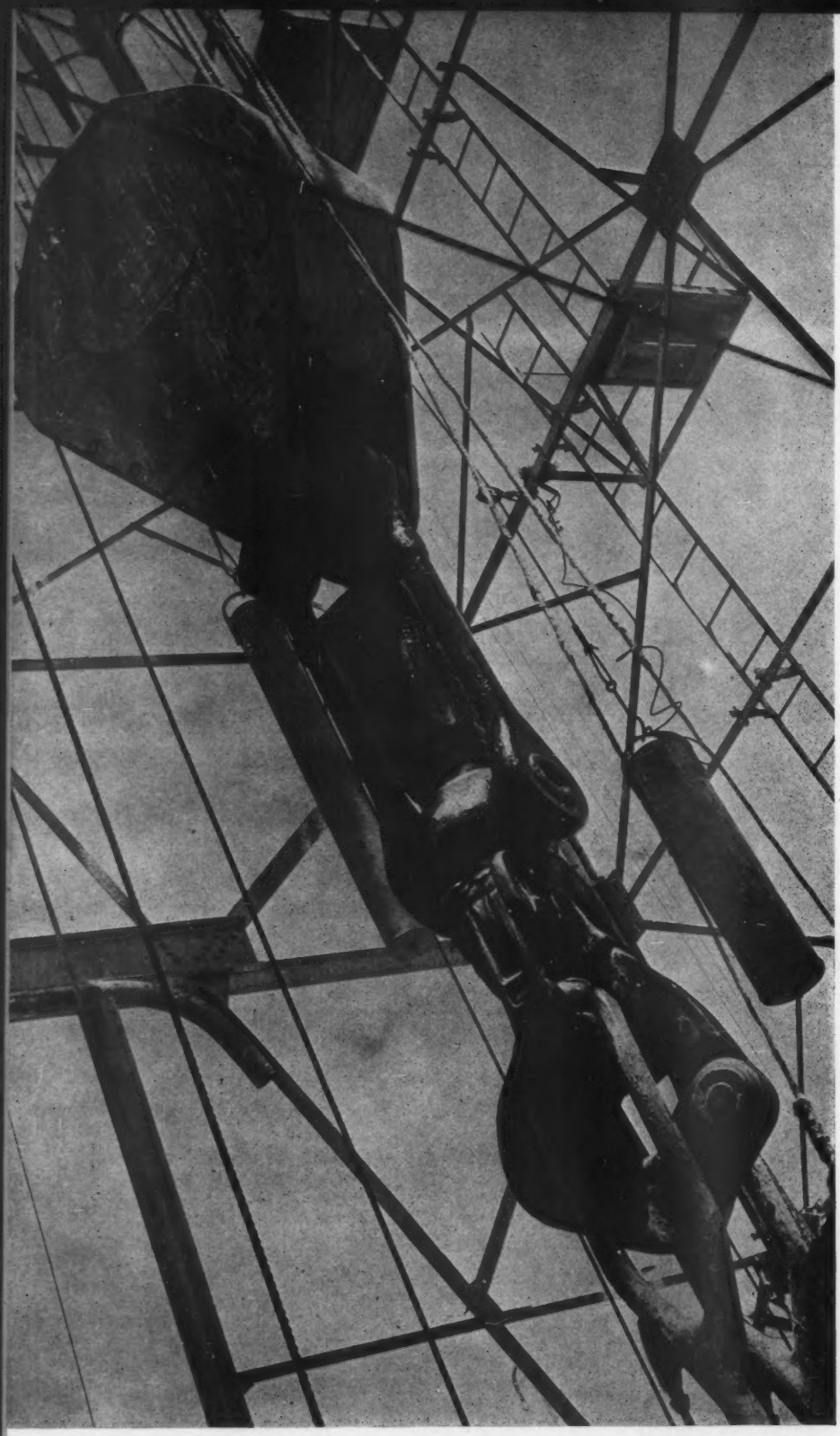


Relatively new were the Emsco traveling block and the Byron Jackson hook and elevators. Wire line is American.

8⅝"	13874′
8½"	14622′

It is the belief of the writer that with equipment of the proper capacity, deep wells such as this one can be economically drilled with minimum trouble from the power end, and as satisfactory results can be obtained as with any other form of power. One should bear in mind that the equipment used on this well was simply an accumulation that the company had gathered together over a period of years and was not designed for the job, since it is very doubtful as to whether any company would undertake to drill a well of this depth starting out with such small equipment. The operation of the motor on the table drive would have been much more satisfactory if a speed reducer had been placed between the motor and the table. This would have allowed more flexibility than was the case, since it was necessary to secure all speed reductions by means of insertion of resistance in the rotor circuit of the motor. This meant that, many times, the motor was not operating economically, since this resistance would be in circuit simply to secure the necessary speed reduction. A saving in the power here of upwards of $5.00 per day would result many days when the motor was in steady operation. Also, more speeds would be available since the speed reducer in combination with the resistance would make for a more flexible unit.

While operation of the mud pumps was fairly satisfactory, much better operation can be secured with modern control, whereby stalling of the motors is permissible over an appreciable period of time. Also, better operation in paralleling the pumps would be possible with the new types of control available.

In order to make fast time such as modern deep hole drilling calls for, it would seem that a 300 HP motor on the table drive and two 300 HP motors on the draw works, with the necessary apparatus to go with them, would be about right. Also, large mud pumps would be necessary with motors of proper size to drive them without the excessive overloads that we had in drilling this well. There is one thing about the electric motor that must always be borne in mind and that is the high pull out torque usually built into these motors and the capability of the motor to stand excessive overloads for a time. Of course, such values are all subject to design but the usual type of var-

(Continued on Page 21)

Notes on Geology of Honolulu's Deep Test

In Buena Vista Hills

By
Geology Department, Honolulu
Oil Corporation

Honolulu Oil Corporation's Well 25P is located in Section 10, T.32 S., R.24 E., MD B&M, of the Buena Vista Hills anticlinal structure, Midway-Sunset Field.

Most development on the structure prior to the drilling of this well was confined to the Pliocene and Pleistocene formations above 4,000 feet. Brown shale of Miocene age was topped in several wells looking for deeper Pliocene production and two wells were drilled more recently on the eastern end of the fold looking for a pinch-out of the Stevens sand zone, productive in Mid-Valley fields, but Well 25P was the first planned test of sub-Pliocene formations on top of the structure.

Objectives

Objective of the deep test was any productive oil zone in the formations below the present productive horizons, known collectively as the Old Pool. Possibilities included a sandy zone in the upper Brown Shale services equivalent to the Stevens zone of Coles Levee, Ten Section, etc.; a sand in the Middle Miocene corresponding to the Olcese sand of Eastside fields or Temblor of Westside areas; and a sandy phase in the Lower Miocene, equivalent to the Vedder — "Vaqueros" sands found productive in other Valley areas. At the time of spudding, the Eocene formations were also thought to be within reasonable reach of the bit if the Miocene yielded nothing.

Consistently greater thickness of the strata than was anticipated from the meagre control data available at the time of spudding, together with a series of steep dips, made it necessary to carry the hole to the final depth of 14,622 feet to reach the Lower Miocene sand section originally expected not lower than 10,000 feet. Beds of Eocene age probably underlie this structure, but all evidence now available would place them well below 16,000 feet at this location.

Lithology

Frequent spot coring supplemented by ditch sampling and a rate-of-penetration record gave a quite complete picture of lithologic changes in the well. Noteworthy is the great thickness of siltstone, fine sand and silty shale which are interbedded, usually, in highly irregular, contorted and cross-bedded fashion, with a high percentage of carbonaceous

In this shot of kelly, bushing, drill pipe, tongs, slips and rotary table are represented Baash Ross, Youngstown, Jones & Laughlin, Varco, Byron Jackson and Oil Well.

CALIFORNIA OIL WORLD AND PETROLEUM INDUSTRY, FIRST ISSUE, AUGUST, 1941

material and a notable scarcity of megascopic fossil remains.

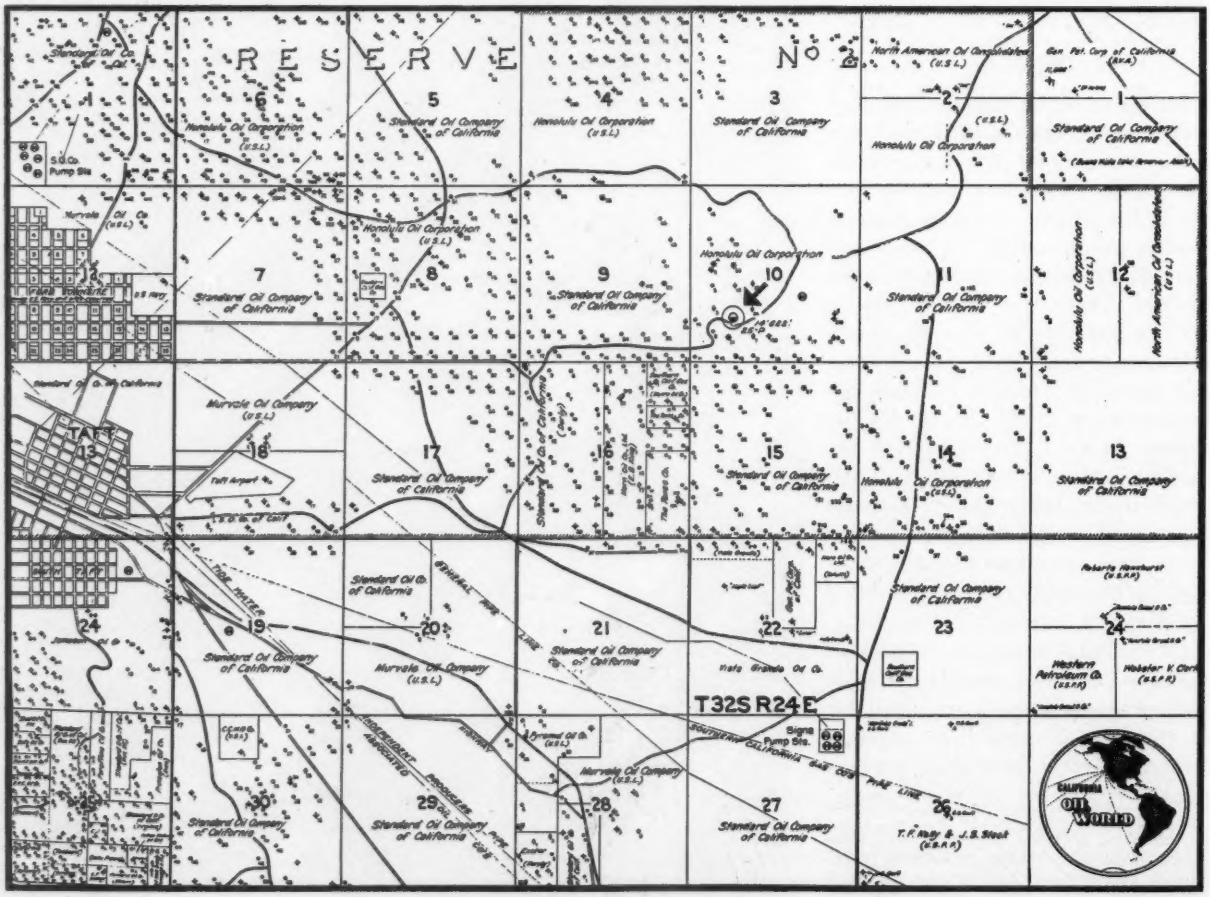
This type of lithology is continuous across some of the paleontologists' Foraminiferal horizons. It indicates a very rapid deposition of a large volume of eroded material under conditions unfavorable to much secondary sorting or grading. All sands penetrated below the Old Pool were very poorly sorted, silty, and of consistently low permeability. Porosities averaged 18% in the best oily zones and 10% in the non-permeable, non-oily streaks.

Most occurrences of oil and gas were found to be limited to a few streaks where a "biscuit" parting (slightly concave parting at ½-1 inch intervals) had increased the permeability of the sand as a zone (individual "biscuits" might be very impermeable).

Frequent encounters of high pressure gas proved the utility of the Shaffer drilling head.

Paleontology

Occurrences of diagnostic fossils are noted in the accompanying log. Paleontologists agree the well stopped in Lower Miocene beds. Beyond this there is some disagreement as to the position of the bottom of the hole in relation to a Vedder sand



Map showing Well No. 25-P in Buena Vista Hills.

SUMMARY OF LOG OF HONOLULU OIL CORPORATION WELL 25P BUENA VISTA HILLS

Approximate Interval	From	To	Age	Description
920′	0′	920′	Pleistocene (Tulare formation)	Yellow sand, clay and gravel.
1450′	920′	2,370′	Pleistocene (San Joaquin clays)	Blue, green, and brown clay shale, gray sand, and fine gray siltstone. Gas in some sand streaks. Type **Scalez** cored 2285′.
530′	2,370′	2,900′	Pliocene (Etchegoin)	Silty gray sand and blue silty shale. Depleted oil sands 2480-2660′ and 2860-2900′.
1700′	2,900	4,600′	Upper Miocene (Reef Ridge & McLure)	200-300′ of silty gray sand and clayey blue-gray siltstone becoming harder and blue-brown. Below 4030′ is platy, laminated, punky to siliceous brown shale. No oil or gas in this interval. **Tamiosoma** (giant barnacle) cored at 2900′.
2217′	4,600′	6,817′	Upper Miocene (McLure with Stevens sand equivalent)	4600-5780′—Punky to siliceous brown shale with few thin oily silt laminations 4600-4940′ (Top of Stevens zone equivalent). 5780-6000′—Gritty, silty "tight" oil sand with shale and silt partings. 6000-6561′—Sand and shale with 15% oily streaks. 6561-6760′—Bentonite and siliceous brown shale. 6760-6817′—Sand and shale with 18% oily streaks.
1772′	6,817′	8,589′	Upper Miocene (Pulvinulinella gyroidinaformis zone)	6817-7300′—Silty tight sand and silt with shale partings. 18% oily or gassy. 7300-7430′ — Hard brown laminated siliceous shale. 7430-7550′—Sand as above. 18% oily or gassy. 7550-7690′ — Hard brown shale as above with bentonite cored 7610′. 7690-8589′ — Silty sand and gritty sandy siltstone. Bentonitic and ashy at top. No oil or gas. Cored 1st. **P. gyroidinaformis** at 6817′.
2262′	8,589′	10,851′	Upper Miocene (Valvulineria californica zone)	8589-10,851′—Hard gritty dark carbonaceous siltstone, hard "tight" silty sand, and hard dark brown silty shale with cherty streaks. Thin gassy or oily streaks throughout. Cored 1st. **Pullenia miocenica** and first unquestionable **V. californica** at 8589′.
783′	10,851′	11,634′	Upper-Middle Miocene (Gould shale and possibly Media shale)	10,851-10,920′ — Siltstone, sand and shale as above 10,851′. 10,920-11,040′ — Hard silty fine to medium sand with some gas and oil-stained streaks. 11,040-11,634′ — Hard brown silty shale with limy and cherty streaks and a few silt partings. Some gas and salt water. Frequent sand streaks in bottom 100′. Cored 1st. common **Planulina aff. ariminensis** at 10,851′ and 1st abundant **Siphogenerina branneri** at 11,129′. Top of the Gould shale was probably in drilled interval 10,767-10,851′.

equivalent, due to the lack of any marked faunal change in this part of the section. Lithologically the well was several hundred feet into a silty, sandy section probably equivalent in general to the sandy zone outcropping immediately below the Brown Shale in the Temblor Range south and west of the well, and mapped as "Vaqueros".

Dips

Bedding Plane dips were 4-10° to 7000 feet, 10-15° to 12,000 feet (with some erratic 35-60° dips from 10,000 to 12,000 feet), and consistently high below 12,000 feet, generally 50-60°.

Deviation of the Hole from Vertical

No continuous survey was made of the hole. Single shot deflection records showed no angle greater than 3⅛°, with the majority of readings less than 1°.

Temperature in Hole

Greatest depth of a temperature reading was 12,821 feet, which was also the greatest depth to which an electric log was recorded. This reading was 345°, which is well above a projected gradient temperature of 304°. This same gradient projected to the bottom of the well indicates a temperature at 14,622 feet in excess of 325°.

(Continued from Page 18)

iable speed motor used on this work has around 400% pull out torque which means that it can do a very considerable job in a pinch. It is for this reason that the writer feels that motors of above capacity could adequately take care of any deep drilling in competition with any other form of power.

In our case, we have tried to keep the same size of motor as well as the same make on our rigs, as we have found that in emergencies we can switch equipment around to good advantage. Spare parts are thus kept at minimum values and by keeping one motor in reserve, we have very little time lost due to electrical equipment.

While we are still working on the

FIRST LINE PERFORMANCE

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Consolidated PBY-1
Long Range Bombers

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Use Associated Aviation Ethyl gasoline in your own car. It's refined to strict aviation specifications to give quicker starting, snappier pick-up and quieter power. You'll discover Associated Aviation Ethyl vastly superior to automotive gasolines both regular and ethyl. Try a tankful today and note the difference.

TIDE WATER ASSOCIATED OIL COMPANY

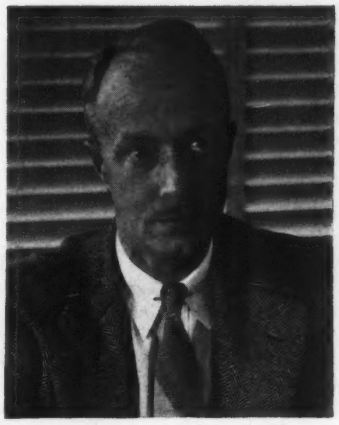
2988'	11,634'	14,622'	Middle-Lower Miocene (Santos shale and possibly top of "Vaqueros" sand phase)	At 11,237-348' drilled top of a **Nonion—Nonionella** fauna which is generically related to the Media shale fauna of the Belridge area. 11,634-12,300'—Very hard silty gray sand with some siltstone and black shale partings. Some streaks bentonitic. Infrequent gas. 12,300-12,520' — Dark brown shale with black chert streaks and silt laminations. 12,520-12,620'—Sand and siltstone as above. 12,620-13,650'—Hard dense black shale, occasionally siliceous. Very little sand or silt. 13,650-13,850'—Black shale with increasing silt streaks. Gas show 13,738'. 13,850-14,050'—Black shale and very hard fine compact gray sandstone. Strong gas 14,010'. 14,050-14,622'—Very hard mostly impermeable silty gray sand with some shale partings. Strong gas and salt water 14,100' and very high pressure gas and salt water at 14,600'. Top of Santos shale was picked by correlation of faunal assemblages. Cored **Siphogenerina transversa** at 13,368' and **Uvigerina gallowayi** at 13,788'.

well, the company has decided not to carry it to any depth beyond the present limit. Operations now consist of testing formations in the upper parts of the hole, so our limit for this one is 14,622 feet.

Dr. R. M. Otis Joins Lane-Wells

Dr. Russell Morley Otis has joined the engineering staff of Lane-Wells Company according to an announcement made recently by Norman L. Dorn, Lane-Wells vice president and chief engineer.

Dr. Otis, a graduate of the California Institute of Technology, is a well-known



Dr. R. M. Otis

research engineer and physicist. His experience includes research work with the Bell Telephone Laboratories, three years as director of research for the Hughes Development Co., research work in color films with Multi-Color Ltd., research and patent engineering work for the Burt-Warner Power Corp., wing stress analysis work for the Manta Aircraft Corp., and several years as an independent research counselor and patent attorney.

AGAIN—

VARCO

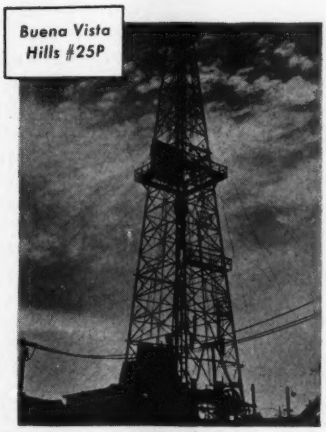
MASTER AND KELLY BUSHINGS MAKE WORLD RECORD

March, 1939—The world's deepest well, Continental KCL-A2 was drilled 15,004 feet. July 3, 1941—The world's second deepest well, #25P was drilled 14,622 feet. In both cases a Varco Master and Kelly Bushing was used to make these world records and in each case the Varco Master and Kelly Bushing was a regular model taken from stock without any thought of its ultimate epoch making use.

The #25P is the deepest well ever drilled with electric rig and is the deepest large bore, 8½" at bottom, in the world. The tough shale through which this hole was drilled created a terrific strain. That stock equipment was able to stand up and deliver is your greatest assurance of the quality of Varco Master Bushings.

Correctly engineered, they insure utmost stability, eliminate unnecessary wear and tear and save breakage. As a result they effect a saving of time and money never before possible, because of the basic faults and weaknesses of ordinary Master Bushings. In thirteen months drilling there was less than forty four hours down time and most of that was due to power breaks and not to equipment.

Write today for bulletin giving sizes and prices, also full information on Varco Kelly Bushings.



Abegg and Reinhold Co., Ltd.
Office and Factory: 2533-41 East 26th Street, Los Angeles, California
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M. N. Bailey Dies In Royersford, Penna.

Meredith N. Bailey, who has been active in the Gas Industry during the past thirty years, died after a brief illness, July 24, at his home in Royersford, Pa.

Mr. Bailey was born on April 25, 1880, at Cape May, N. J., and is survived by his widow, Mrs. Linda R. Bailey, and his daughter, Mrs. Mary B. Koch.

He was educated at the Cape May High School and at Deat's Academy, Cape May, N. J. Before joining the Keystone Meter Co. of Royersford on July 1, 1909, he worked for several years in the Plant and Engineering Department of the Bell Telephone Co. in Pennsylvania.

When the Keystone organization was absorbed by American Meter Co. in 1916, Mr. Bailey continued his long career as a successful "Suppler" of gas meters, representing his company with headquarters at the 1513 Race Street factory in Philadelphia.

Meredith N. Bailey

He was promoted to become assistant manager of the American Meter Co.'s Philadelphia plant April 17, 1935.

Judge Hall Rules for Defendants In Important "Mudding Off" Case

By W. S. Pallette

A decision of great interest to the oil industry was rendered July 21, 1941 by the Honorable Pierson M. Hall, Judge of the Superior Court of the County of Los Angeles, State of California, in an action entitled "Hubert F. Laugharn, as Trustee in Bankruptcy in the Matter of Jack Dave Sterling, Bankrupt, Plaintiff, vs. Bolsa Chica Oil Corporation, et al., Defendants." Plaintiff was represented by Messrs. Joseph J. Rifkind and Raphael Dechter, and defendant by Donald H. Ford and W. S. Pallette of Overton, Lyman & Plumb. Briefs Amicus Curiae were also filed by Hanna & Morton, Martin H. Easton, William M. Rains, Finlayson, Bennett & Morrow, Harry L. Dunnigan and Mathes & Sheppard.

Judge Hall's decision finds that there is no liability in the absence of negligence or willful misconduct on the part of a driller in a common oil pool if, in the course of drilling operations, circulation is lost and the drilling fluid appears in and damages a well of another operator in the same oil pool. In this case it was the contention of the plaintiff, who contended that his well had been damaged through the infiltration of drilling fluid from defendant's well, both located in the Tideland in Huntington Beach, California, that defendant was liable, without fault and in the absence of negligence, for the cost of cleaning out and putting plaintiff's well back on production, for the loss of production during the time the plaintiff's well was idle and for diminished production thereafter.

The case is the first case within the knowledge of counsel in which this contention has been raised and litigated. Heretofore it has generally been assumed that so-called "mudding off" is one of commonly accepted hazards of the oil industry, particularly where drilling is conducted in town lot areas such as Huntington Beach, Signal Hill, Montebello, etc. If the doctrine were to be established that the driller of an oil well is an insurer against the escape of drilling fluid where he is using every precaution commonly used in the particular area in which he is drilling, and as a result that he is absolutely liable for any damage to or loss of production by an adjoining operator who drilled into the same oil pool with knowledge of the congested nature of the area, it is obvious such a doctrine would mean that the first well drilled would have a tremendous advantage, in that adjoining land owners with the same right under the law to prospect for and produce oil from the common pool underlying the land, would be placed in the unfortunate position of running the risk, without any fault on their part, of large damages if they attempted to drill their land.

That such a doctrine would be utterly and completely unfair, and one certainly not recognized by the industry as a whole, is well illustrated by the fact that all of the amici curiae called upon by the court to render advisory opinions, without exception, recommended to the court that he find as he did — that no liability existed on the part of the defendant unless plaintiff could show negligence or misconduct in the drilling of defendant's well.

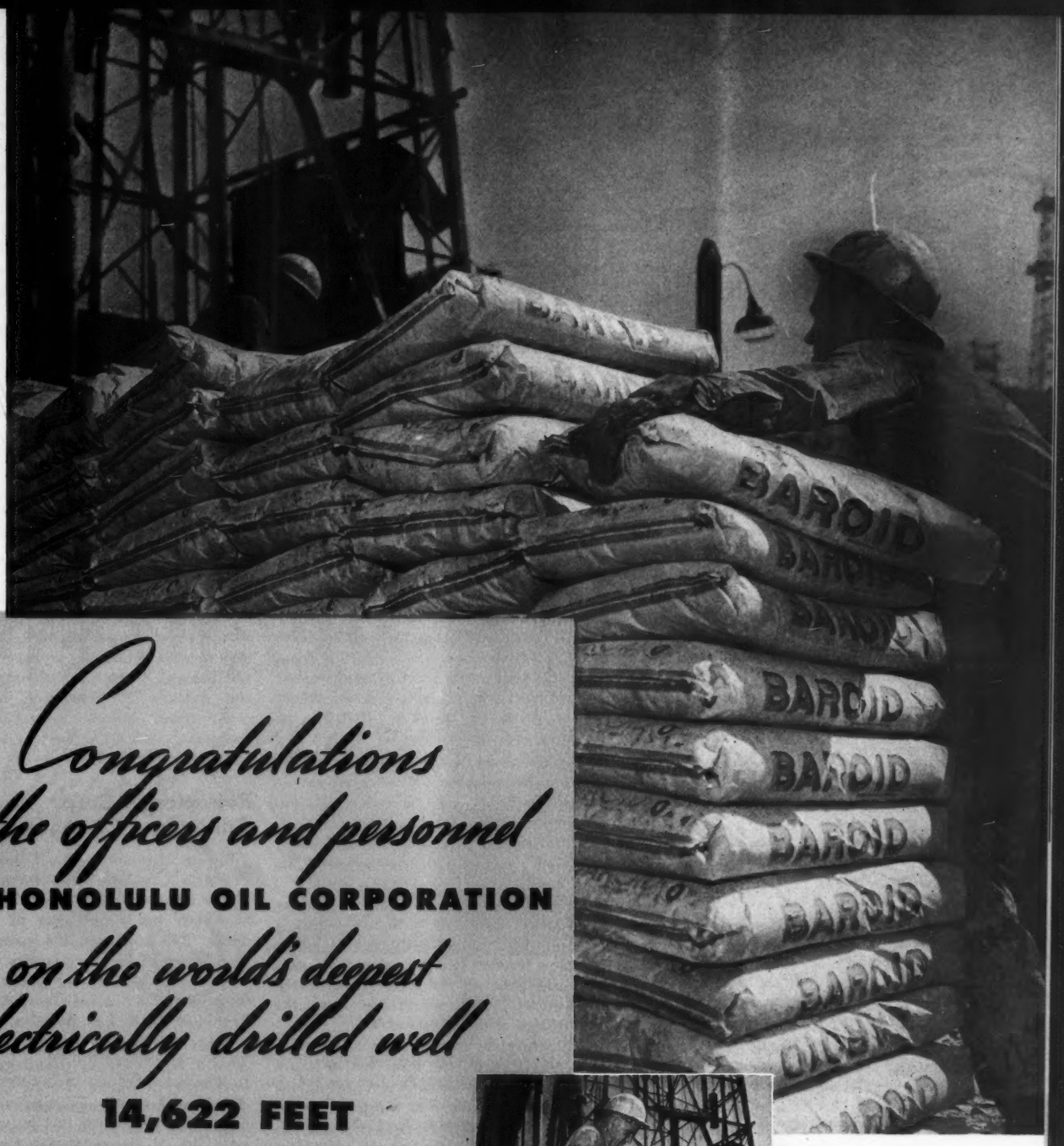
Excerpts from the Opinion of the Judge in rendering his decision follow:

"It follows from the failure to charge negligence in the first cause of action that the acts of redrilling and the defendant's use of mud were done without fault; that is, reasonably and with due care by the defendant.

"The Plaintiff relies upon the maxim **'sic utere tuo ut alienum non laedas'** as requiring that the defendant be held absolutely liable for the damage to plaintiff regardless of defendant's lack of negligence; in short, that the defendant is an insurer of plaintiff's right to drill for and produce from plaintiff's well without any hazard resulting from the defendant's right to drill for and to produce oil on his own property: and further maintains that defendant's acts constitute a trespass, making defendant liable for the resulting damages; and, while disclaiming reliance on the theory of nuisance, nevertheless argues that defendant's acts constitute a nuisance with resulting liability.

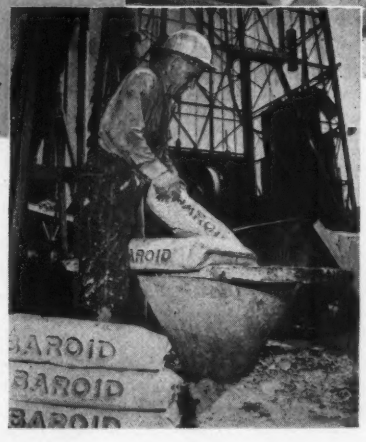
"Plaintiff builds his case on the interpretation of the maxim found in many of the cases, viz, "One must so use his **property** as not to injure the **property** of another.' But it is noted that as incorporated in the code it reads: 'One must so use his **rights** as not to infringe upon the **rights** of another.' (CC 3514)."

"Oil is a fugitive substance obtained from great depth, which depth is known only in each instance after the oil strata has been penetrated by the drill: It is recovered from various kinds of formations, some regular and unbroken and others cracked and broken, which never can be exactly known, but information concerning which is likewise not ascertainable until after the fact of drilling; it is not owned in place like other minerals, but can be owned only after it is reduced to possession; the surface owner has the exclusive right to use his property, vertically from the surface borders of his property downward, to drill for and recover oil and any penetration by the drill across such vertically extended line is a trespass, but the surface owner does not have an **absolute** right to the gas or oil beneath his surface: each surface owner, without right of restraint from any neighbor or other producer in the same pool, may drain all the oil from be-



Congratulations to the officers and personnel of **HONOLULU OIL CORPORATION** *on the world's deepest electrically drilled well*

14,622 FEET



We are pleased that BAROID and AQUAGEL were used to help drill Honolulu's No. 25-P deep test. Baroid Products have been used in most of the world's deep wells.

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BAROID PRODUCTS: BAROID AND COLOX, AQUAGEL, FIBROTEX, BAROCO, STABILITE, AQUAGEL-CEMENT, SMENTOX, ZEOGEL, IMPERMEX, MICATEX, TESTING EQUIPMENT, BAROID WELL LOGGING SERVICE

neath the lands of others. The instrumentality used in drilling oil wells is, and for almost twenty years in California has been, the rotary drill, which necessitates the use of a fluid heavier than water; drilling mud is ordinarily, if not universally, used in such drilling operations as the fluid to be forced into the hole under pressure and to act as a repressant to, and a sealing agent against, the gases and oil or water which may seek escape under pressure from below during drilling operations, and as a cooling and lubricating agent to the tools, and as a circulating medium to bring bit tailings to the surface and out of the hole."

"The plaintiff and defendant were producers competing for oil from the same pool or structure and their wells were located on small town lots immediately adjacent to each other.

"Each of them therefore was subject to the rights of the other. There is no question of **priority** in point of time as giving either a preference to the exercise of his rights, which question of priority sometimes controls the decisions concerning water and mining rights.

"The question to be determined, therefore, is whether or not an oil producer who according to the ordinary, usual, and established methods of the oil business, brings drilling mud upon his land, and in an ordinary usual, and reasonable manner, without negligence, uses it in a drilling operation, can be held liable in damages to an immediately adjacent competing producer for additional operating costs and loss of production, or either, caused by the drilling mud permeating through underground passages into an adjacent oil well.

"Diligent research of counsel failed to disclose any discussion of the rule of absolute liability under such circumstances, either in the decisions of this state or elsewhere.

"The consideration of this matter is thus a case of first impression and, as remarked in **Collins** v. **Gas Co.**, 131 Pa. St. 143:

'The dividing line between the right to use one's own and the duty not to injure another's is one of great nicety and importance and frequently of difficulty.'

In view of which, and in view of the great number of oil wells in the State of California (approximately 15,000) and the rights of the public involved in its dependency on the production of oil for both power and lubrication in the Pacific Coast region, where there are no known coal deposits, it seemed appropriate that the Court ask members of the Bar not of counsel to submit briefs **amicus curiae.** These, in addition to the most excellently prepared and skillfully presented briefs and arguments of counsel of record in the case, have been helpful in the solution of the perplexing ramifications of this question."

"The other California cases upon which plaintiff depends are either explosion cases, dumping cases, mining cases, diversion of water cases, or percolating water cases.

"The explosion cases, not only in California, but those cited and examined from other jurisdictions follow in reasoning **Colton** v. **Onderdonk**, 69 Cal. 156, and base liability upon the fact that using explosives is **'an unreasonable, unusual, and unnatural use'** of the land which is **'intrinsically dangerous'** and from which the **'necessary, probable or natural consequence'** would be damage to a previously established inconsistent use; even in the explosion cases where there is no previously established inconsistent use or right liability does not follow. See **Houghton** v. **Loma Prieta Lumber Co.**, 152 Cal. 500, where the defendant was held not liable for the death of a mere passerby which resulted from blasting done in an uninhabitated region, unless there was negligence in the preparation or in the manner in which the blasting was carried on.

"It cannot be said that the use of the mud in defendant's oil well was, so far as plaintiff's oil well is concerned, unreasonable, unusual, unnatural, instrinsically dangerous, or that the necessary, probable or possible consequence of its use would do injury to the plaintiff.

"The dumping cases, of which **Donday** v. **Oswald Bros.** 113 C.A. 570 (1931) is typical, are no authority for plaintiff's position because in those cases the dumping was done on the plaintiff's property deliberately, with no escape from the knowledge of the effects of it."

"It cannot be concluded from the mining debris cases, the diversion of water cases, the percolating water cases, the dumping cases, or the explosion cases, that liability without fault should follow as between adjacent oil operators competing in production from the same pool and the use by one of them of an agency ordinarily used in the usual conduct of the business."

"The other case is more nearly analgous in facts than any of the cases cited or examined. It is **Texas Coal & Oil** v. **Comache Duke Oil Company** (Texas 1925), 274 SW, 193. In it, the plaintiff, an oil producer, sought to recover damages from the defendant oil producer because of injury resulting to plaintiff's well as a result of the use by defendant of nitroglycerine in 'shooting' defendant's well. There the Court pointed out that under the doctrines governing the ownership of oil, the owner of the surface of one tract of land with a producing well thereon can drain all of the oil out from beneath both tracts, completely destroying the other well without liability, and held that, the use of nitroglycerine being an ordinary and customary act in the drilling of wells in that area, the defendants could not be liable unless they were negligent."

"In any consideration of this question, the general rules cannot be overlooked which concern assumption of risk, that one who for purposes of his own voluntarily placed himself in a position of danger from underground results of adjacent drilling assumed the risks ordinarily incident to that position, but only those which are ordinary incident, and which do not come from a negligent or willful act or operation.

"To hold the driller of an oil well liable to another oil well operator in the same field for underground penetration of fluids into the other well, where there was no negligence, would result in a virtual monopoly to the first operator who should penetrate an oil pool, because to thus compel liability as an insurer, would add the risk of such additional unknown and unknowable cost that no driller could afford to take the chance in a business which is at best a costly and hazardous one."

Refractories Corp. Announces Changes

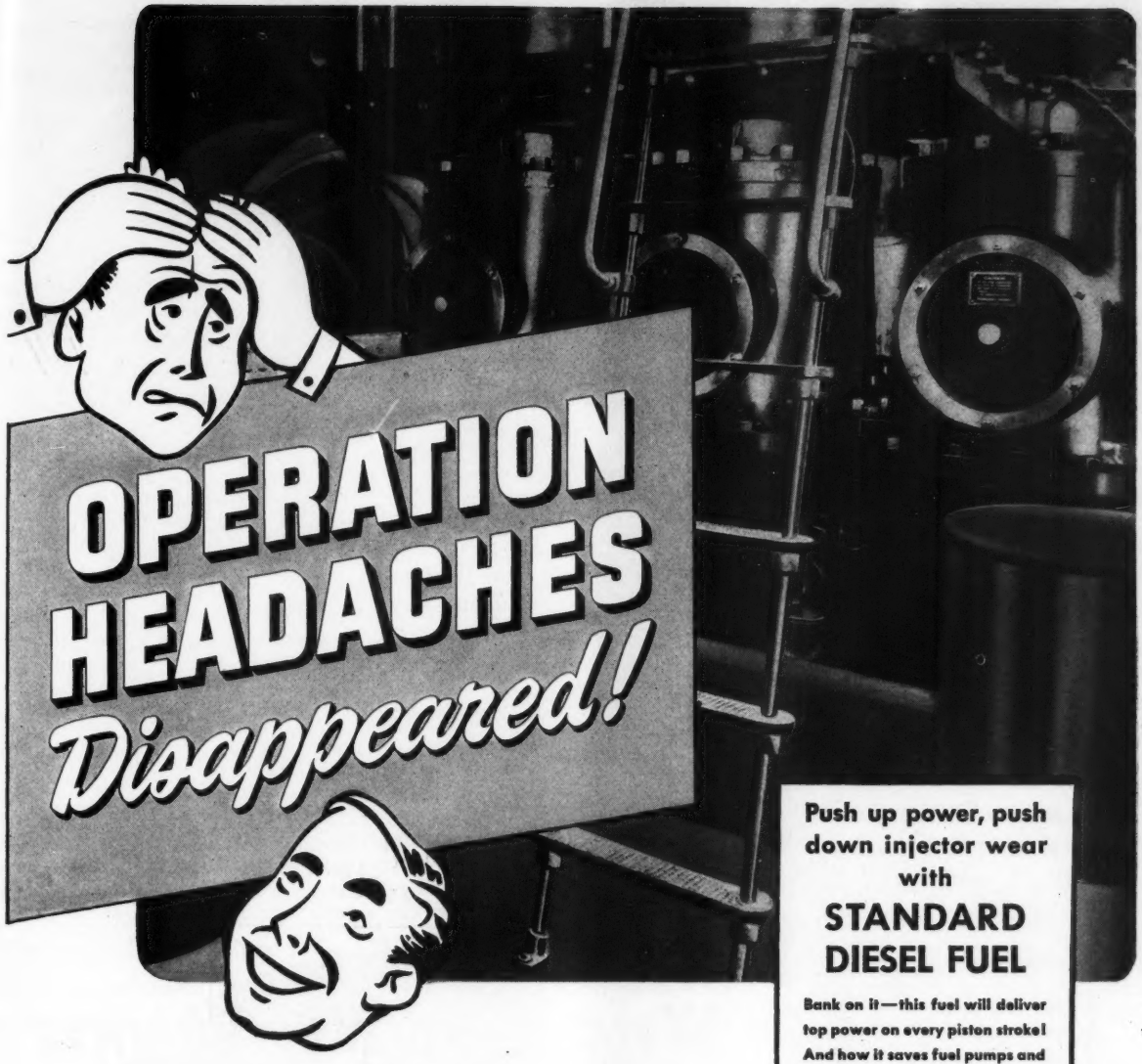
Recent changes in the Tillotson Clay Products Co. have been brought about by the retirement of Clifford Tillotson as an officer and part owner of the business. The name of the company has been changed to Refractories Corp. to more nearly indicate the products manufactured at its plant located at 3363 Fruitland Road, Los Angeles, Calif.

Other changes include the election of Arnold K. Fitger as president. C. E. Beckett and W. G. Austin have taken charge of the sales and engineering work for the company. H. E. Primm, formerly with Harbison-Walker Co. at their Hammond, Ind., plant, has been appointed superintendent of the plant in charge of silica and clay brick.

R. P. Bradish continues as secretary of the company. John Mofatt, Jr. continues in charge of the production of tank blocks, clay shapes and sillimanite products.

Refractories Corp., under its former name, has long served the petroleum industry as a supplier of important refractory materials. The enlarged sales and engineering personnel indicates the expanding activities of the company.

Apples packed in oiled paper avoid scald in storage and stay on the market the year round.



OPERATION HEADACHES *Disappeared!*

Push up power, push down injector wear with

STANDARD DIESEL FUEL

Bank on it—this fuel will deliver top power on every piston stroke! And how it saves fuel pumps and injectors! It's made with just the right lubricating quality to protect injector mechanisms with clearances as tiny as 1/400,000th of an inch. What's more it's 100% distilled—absolutely clean.

"WE first tried four other well-known Diesel engine oils." Doesn't that sound familiar to you? But when C. A. Carter, President and Treasurer of Randolph Milling Company at Ava, Illinois, switched to RPM DELO for his 3-cylinder, 210 h.p. FAIRBANKS MORSE DIESEL ENGINE—his troubles were over!

Here's what Mr. Carter says:

"The freedom we enjoy now from ring-sticking and carbon deposits has greatly reduced our overhauls and operating cost. The engine-cleaning characteristics of your oil are such that we now operate twice as long between inspections and this increased efficiency is of the utmost importance to us.

"Our Fairbanks Morse Diesel Engine has been operated on RPM DELO for 15,000 hours under severe conditions and due to the excellent results we have enjoyed, we can highly recommend it."

THE MORAL—Try RPM DELO in *your* Diesels—stops ring-sticking, ends sludge, reduces friction—has doubled engine-life!

RPM DELO

REG. TRADE-MARK

DIESEL ENGINE LUBRICATING OIL

STANDARD OIL COMPANY OF CALIFORNIA

THIS LAUGH

OFF!!

Hudson Drake recalls this one:

Mother: "You know, darling, Ruth is 15 years old now, so today I had a frank talk with her about the facts of life."

Father: "Well, did you learn anything?"

"Mary, is that young man there yet?"

"No, mother, but he's getting there."

Elmo Adams brings the good old vacation times to mind with this one:

A preacher stopped at a fish market and said to the clerk: "Throw me a dozen of those mackerel, one by one."

"What for?" asked the surprised vendor.

"I've got to say I caught them and I can't lie about it."

A refreshing story of service is that told by **Harry C. Drader.**

"But, who would want to steal a Pullman ladder?" complained the conductor.

"I don't know, but she's gone," replied the porter.

At this juncture a passenger occupying an upper berth for the first time overheard the conversation, parting the curtain he generously remarked:

"Porter, you may use mine, I won't need it till morning."

While **Bill Stewart** contributes:

"Whom are they operating on today?"

"A fellow who had a golf ball knocked down his throat at the links."

"And who is the man waiting so nervously in the hall? A relative?"

"No, that's the golfer. He's waiting for his ball."

"Could you send me over some pecans right away?"

"What size?"

"What size? What do you mean, what size? Isn't this Jones' Grocery?"

"No, this is Smith's Hardware Store."

Tom Taggart was reminded of this one:

The Scot's bagpipe playing was the chief thing that mattered to him in life. One night, while he was strutting about the room, skirling for all he was worth, his wife attempted a mild protest.

"Jock," she said, "that's an awful noise you're making."

So Jock sat down and took off his boots.

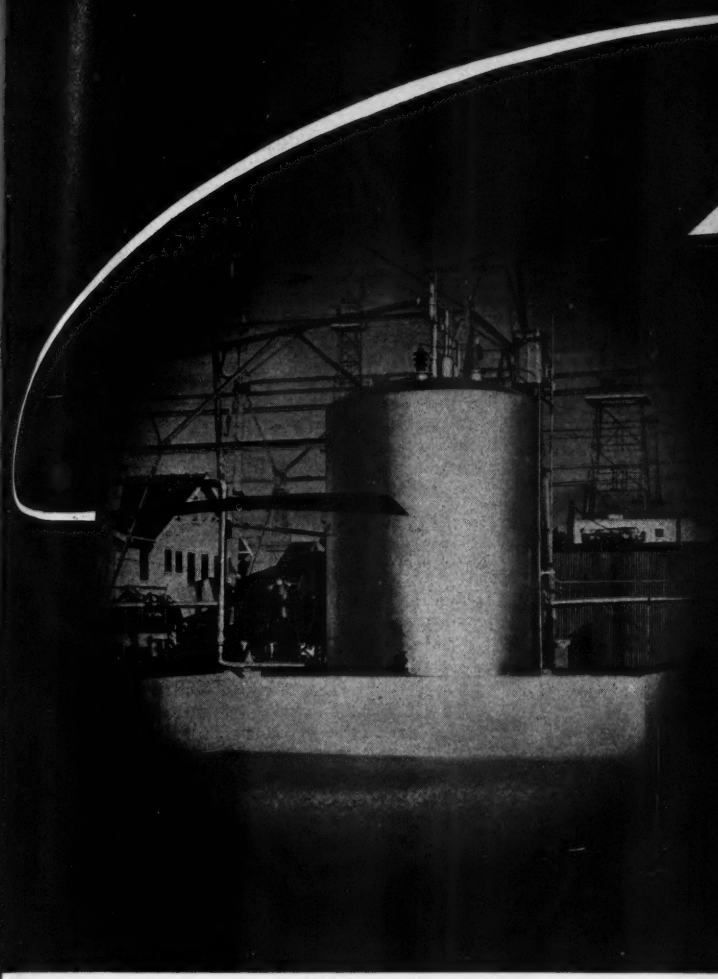
The bride and groom arrived at the big city hotel on their honeymoon. The room they occupied was beautifully furnished with a pair of twin beds. Upon seeing them the bride began to cry and the groom said: "Why, my dear, what is the matter?" "I thought," sobbed the bride, "we were going to have a room to ourselves."

Then, there was the Scotchman, **W. F. Emery** recalls, who was presented with a pint of rare whiskey. He was walking home, when a car knocked him down, hurting his leg badly. He got up and limped down the road. Suddenly he noticed something warm and wet trickling down his leg.

"Oh, Lord," he groaned, "I hope that's blood."

Names used on this page are entirely fictitious, and any resemblance to persons either living or dead is purely coincidental.

WEIGHT INDICATOR POINTS
"Swivel-neck" is a common occurrence with drillers who have to look here, there and everywhere at drilling instruments scattered all over the rig.
For many jobs, portable mud pump gauges and weight indicators are just the thing. But when your driller must control all drilling functions simultaneously . . . and when complex drilling problems constantly arise . . . he needs centralized, accurate instruments to drill an economical well.
Invest in a Martin-Decker "Sealtite". You get the most accurate and complete instruments in the field, installed right before the driller where he can easily watch—and control—drilling operations.
MARTIN-DECKER CORP., LONG BEACH, CALIF.



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Provides *Automatically Controlled*

- ★ OIL FLOW
- ★ ELECTRIC POWER
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- ★ OPERATING PRESSURE
- ★ WATER BLEED

The Petreco Electromatic Dehydrating Process assures savings in gravity and volume that are not available by other treating methods. Its modern, automatic features provide operation that is practically effortless and foolproof. It is extremely flexible—and may be suitably tied into one well, or incorporated into a gathering system serving an entire lease. It is successfully dehydrating crudes throughout the entire gravity range, from many depths and sands, and in widely separated fields.

Petreco also offers an advisory engineering and research service that is equally modern and progressive. A Petreco dehydration survey entails no obligation and will disclose exactly what this modern process can do for your particular dehydrating problem.

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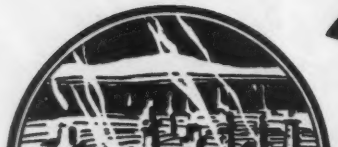


Field Development

Los Angeles Basin

Tide Water Finishes Aliso Canyon Well

Completion of Porter No. 5 in the Aliso Canyon Field was accomplished by Tide Water Associated Oil at a total depth of 6075 ft. On a twenty-four hour production test the well flowed at a rate of 2105 barrels of 25.6 gravity oil and established a daily gas potential of 1,050,000 cubic feet. Producing from the Porter zone, No. 5 is one of the largest producers brought in by the company since their discovery of the field in October, 1938.

Tide Water Associated Oil Co.'s Mission No. 1, located a mile east of the field, is drilling near the 2000 ft. level.

Snyder to Drill Near Wood-Mellon

Geo. N. Snyder, who recently has been attempting to produce the Wood-Mellon Oil Co. well, is reported planning to drill a new hole one location to the south at the northeast corner of Figueroa St. and Victoria Ave.

Havenstrite Completes New Del Valle Producer

Flowing at the initial rate of 502 bbls. a day through a 22/64 in. bean, R. E. Havenstrite, Operator's Lincoln No. 4 was brought in as the fourth producer in the area and the third on the Lincoln Petroleum Co. lease. Gravity of the oil was in excess of 35 degrees and the gas-oil ratio satisfactory at 900 cu. ft. per barrel. A few days following, No. 5 came in for 1,060 bbls. of 36 gravity clean oil through a 16/64 in. bean. The wells were bottomed at 6170 and 6115 ft. respectively. No. 6 is preparing to complete while Lincoln No. 7 has just spudded in and No. 8 is rigging up. Foundations are in for Barnes No. 1.

In the new West Del Valle area, the discovery well, Jasper Petroleum Co.'s Videgain No. 1, is flowing 210 bbls. daily through an 8/64 in. bean. The 9.0% water content is believed due to leakage past the bottom plug. The Jasper company is planning to start a second well while three other companies are making hole on offset locations. First of the offset wells to get underway was Bankline Oil Co. on Videgain No. 101 which is now below 3000 ft. Standard Oil Co. and Ohio Oil Co. have only recently spudded in.

Because of the complexity of the structures in this area, geologists are watching the development with more than usual interest.

LOS ANGELES BASIN WILDCATS

Area	Well	No.	Section	Depth	Status
Athens	Rankin & Williams	1	7, 3-13	9483	Reaming
	Lytle, Robt. S., Operator, Anderson	2	1, 3-14	1682	Drilling
Castaic	Barnsdall Oil Co., Honor Rho	A-19-1	7, 4-16	7768	Abandoned
	Young, Roy W., Inc., Walker	1	11, 4-16	2025	Drilling
Coyote—West	The Texas Co., McNally	A-1	22, 3-11		Rig
El Segundo	Dominguez Ext. Oil Co., Dominguez-Sunset	1	19, 3-14	7865	Idle
Inglewood	Cliff Baker, Operator, L.A.I.	1	29, 2-14	6555	Idle
Newhall	Barnsdall Oil Co., Limbocker	1	17, 3-16	320	Drilling
	Kenneth Oil Prod. Co., Shepard-Roy	1	34, 4-15	1640	Drilling
	St. Anthony Oil Corp., Lassalle	1	10, 3-16	4925	Drilling
	Tunnel Oil Co., Needham	1	13, 3-16	1366	Drilling
Palos Verdes	Newton Dev. Co., Palos Verdes	1	13, 5-15	2108	Drilling
	Surety Holding Co.	1	22, 5-14	325	Drilling
Puente Hills	Continental Oil Co., Turnbull Comm.	1	13, 2-11	2555	Drilling
	Kosanke, J. F., Dragna	1	24, 2-10	1700	Drilling
	Sunset Oil Co., Baldwin	1	11, 2-11	1860	Drilling
Redondo	Jergins Oil Co., Dominguez	1	5, 4-14	3860	Testing
Rio Hondo	Rosemead Corp. Well	1	32, 1-11		Foundation
San Fernando	Imperial Corp., Rolland Lee	1	25, 2-17		Foundation
Wilmington-West and North	A. S. Johnston Drlg. Co.	41	29, 4-13	3623	Completed
	Wilcox, J. F., Timberlake	21	19, 4-13	3457	Drilling
	San Bernardino County				
Chino	Prado Oil Corp., Lamp	1	32, 2-7	1525	Idle

Bob Lytle Spuds New Anderson Well

Moving 330 ft. north and 660 ft. west from the ill-fated Anderson No. 1, Robert S. Lytle, Operator, is drilling No. 2 to the Eighth Callender zone equivalent from which El Rey Oil Co. produced a non-commercial rate of oil for nearly a year. Lytle's first hole was lost at 8087 ft. when gas, mud and water blew uncontrolled for 36 hours from a horizon estimated to be above 2000 ft. The new try is located near the northeast corner of Imperial Highway and Western Ave. and is about a quarter of a mile east of the El Rey well which found its best showings between 8600 and 8900 ft.

Texas To Drill At La Mirada

At La Mirada station on the Santa Fe railroad southeast of Santa Fe Springs, The Texas Co. is preparing to drill its McNally No. A-1 as the latest of many attempts to find a new field in this section of the Los Angeles Basin. Last month Wilshire Annex Oil Co. abandoned its exploratory well, Community No. 1, located a mile and a half to the northeast. There has not been a major discovery in this portion of the Basin in more than 20 years.

San Fernando Wildcat Started

A group of well known oil men temporarily identified as Imperial Corp. have started a wildcat project north and east of the intersection of Roscoe Blvd. and Fallbrook Ave. at the west end of the San Fernando Valley. Oil seeps in the Los Angeles City-Chatsworth reservoir lend interest to the play.

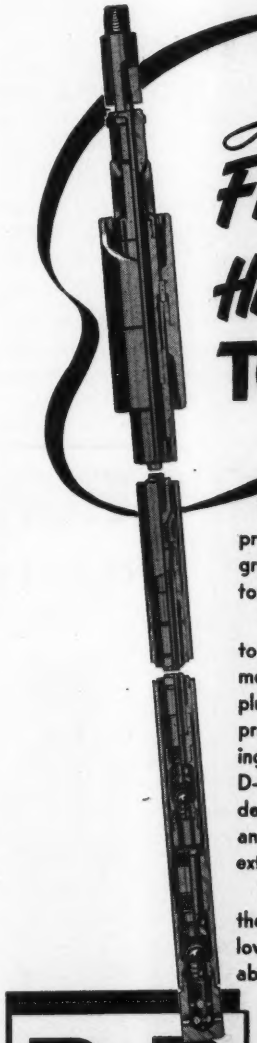
Activity Slacks At West Dominguez

The failure of Lebow-McNee Oil Co. Bouska No. 1 to find production in the Seventh Callender zone and the subsequent abandonment of the well have resulted in a material lessening of interest in the west end of Dominguez. Only a few streaks of sand showed cuts and the drill was stopped at 7308 ft. in gray sand.

North of the Lebow-McNee well, Hileford Associates are drilling below 5000 ft. at the southwest corner of Main and Walnut Sts. and still farther north Seth Williams has erected a derrick and installed boilers. Hiles & Crawford Associates were unable to make Willis No. 1 produce and are reported preparing to redrill. Located on the north side of Artesia Blvd., the hole was bottomed at 7235 ft.

Clareborne Associates is rigging up south of M.P.R. Oil Co. No. 1 but Andor Oil Co. has suspended operations in its well to the south and it is probable that Lebow-McNee Oil Co. will go no further than the foundation now on the Bell lease.

In the central portion of the field, Shell Oil Co. completed Reyes No.



A Fine Precision HARD WEARING PUMP Designed for TOUGH PUMPING

D+B Composite Pumps are made with all the accuracy and precision that is possible through fine craftsmanship and high grade materials, and are designed and recommended for the toughest operating conditions.

The barrel tube is honed to a mirror-like finish on the inside to eliminate all waves, scratches or other imperfections detrimental to the highest pumping efficiency. Composite type plungers are made up of a number of sections assembled on a precision-ground mandrel, and clamped in position by bushings at both ends. The lock-down is of the same exclusive D+B design that has proved so popular with operators who demand high quality and high efficiency. Accuracy, precision and high grade materials prevail through every part, and extreme care is used in their assembling and transportation.

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Available in stationary barrel type with either Top or Bottom Lock Hold Downs; and in Traveling Barrel type with Bottom Lock Hold Down. Pump illustrated is stationary barrel type with Top Lock Hold Down.

D+B DIVISION
EMSCO DERRICK & EQUIPMENT CO.
Plants: Los Angeles, Dallas

122 at 4245 ft. flowing 311 bbls. of clean oil and 968,000 cu. ft. of gas. The company is operating two strings of tools on the property.

Morton Completes Huntington Beach Well

Continuing his campaign in the old section of the Huntington Beach field, H. C. Morton completed Brooks No. 1 on the pump for 50 bbls. a day of 22 gravity oil cutting 15%. Perforations are open from 4515 to 4555 ft. and 4640 to 4670 ft. No. 2 on the Brooks lease is drilling below 4000 ft. Herb Kohlbush is preparing to drill a well on the Ashton lease for A. W. Lyddon.

V. R. G. Wilbur's Twining No. 3 proved a surprise when completed for 80 bbls. of clean oil a day. Several intervals are perforated to bottom at 4595 ft.

Silver Pet. Recompletes Wilmington-Torrance Well

Redrilled and deepened to take in both the Ranger and Terminal zones, Silver Petroleum Co.'s Well No. 2 is being recompleted in the Wilmington-Torrance area. Formerly open in the Ranger zone only, the well will now produce in two intervals; 3140-3240 ft. and 3450-3745 ft.

West of its No. 1 well, the first to produce the Terminal zone in this district, Vesta Petroleum Co., Ltd. is drilling No. 2 at the southwest corner of Figueroa and State Sts.

Activity Reported In Newhall District

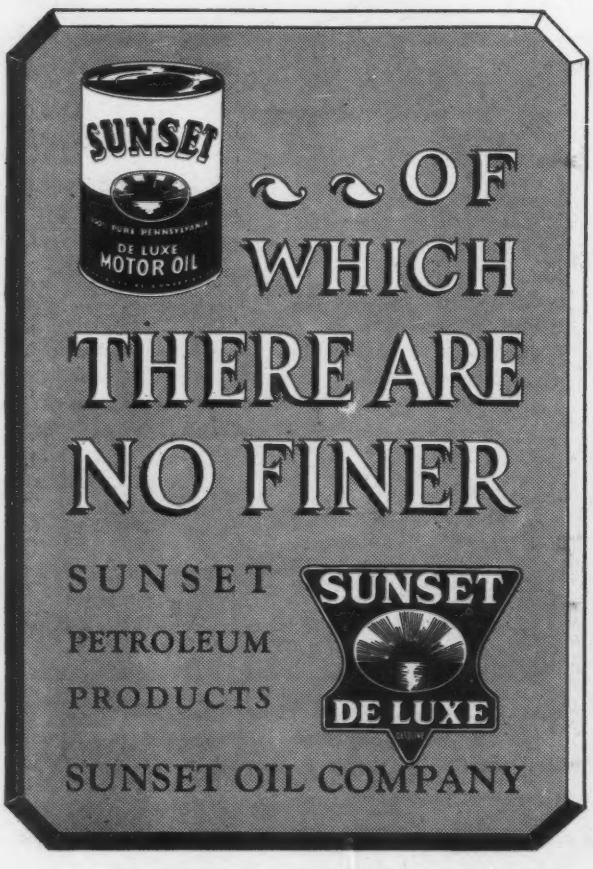
Reflecting the high discovery rate north of the Santa Clara river, five projects are listed as active in the Newhall district. Most critical at present is St. Anthony Oil Co.'s Lassalle No. 1, located east of the Bakersfield highway in Wheldon Canyon, which is drilling in Miocene shale below 4925 ft. A few stringers of sand showing good cuts have been encountered but nothing has been worth testing so far.

In the old Newhall tunnel area, Tunnel Oil Co. is below 1400 ft. on the Needham property while in sec. 6,3-16, south of the road leading to the Newhall-Potrero field, Aztec Oil Co. is reported to be preparing to resume drilling from 4300 ft. The joint Towsley Canyon test of Barnsdall Oil Co., Ambassador Petroleum Co. and Bandini Petroleum Co. has just been spudded in the north half of sec. 17,3-16 on the Limbocker property. Kenneth Oil Producing Co.'s Shepherd-Roy No. 1, located in sec. 34-4-15 near Placerita Canyon, is drilling at approximately 1800 ft.

Northeast of Saugus, Roy Young is nearing 2200 ft. in Walker No. 1, sec. 11,4-16.

NW Wilmington Wells Promise New Activity

With A. S. Johnston Drilling Co.'s No. 41 on production for 80 bbls. a day and J. F. Wilcox's Timberlake No. 1 preparing to test oil sands at 3450 ft., it should be a fair guess that the



Every BOWEN SOCKET
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POSITIVE GRIP AND RELEASE—No unnecessary parts weight down a Bowen Releasing Socket. Yet, for ease of operating, it's an unbeatable tool wherever positive outside holds on fish are required.
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northwest section of Wilmington is due for some more activity.

Located at the northeast corner of Lomita Blvd. and Fries Ave., the Johnston project is producing the interval from 3416 to 3623 ft. and obtaining 14 gravity oil with the 10% cut still diminishing. It is more than possible that present day liners and production methods will make this a profitable area for future drilling.

The Wilcox well, located across Main St. from the easterly end of old production in the Torrance field, appears to have an excellent chance of making a commercial producer and, if successful, should encourage the drilling of a number of new holes.

The old Bren well, located west of Main St. and south of the Santa Fe railroad underpass, is being conditioned for a production test by Calokan Oil Co.

Wildcat Planned Near Rosemead Blvd.

Rosemead Corp., headed by L. J. Stock of Los Angeles, is preparing to drill a wildcat well east of Rosemead Blvd. and one mile north of the east end of the Montebello field. Geology of the play was worked out by Ralph Arnold and drilling will be under the supervision of Bert Brunwin.

So. Calif. Pet. Drills Deep Athens Project

Southern California Petroleum Corp. is drilling St. Anthony No. B-1 to the deep zone in the Athens field. Location is at the corner of 123rd St. and Hoover.

Gasoline Sales Reach New High

An all-time record was established by motorists in California during the first six months of 1941 when they consumed more than 1,000,000,000 (one billion) gallons of gasoline.

This figure was announced by Richard E. Collins, chairman of the State Board of Equalization. It was based on the assessments made by the Board against the taxable gallonage of gasoline distributed by oil companies in California.

Actually, the gallonage for the first half of the current year amounted to 1,007,531,896, against which the Board assessed a total tax of $30,225,956.97.

Indicative of the increase in gasoline consumption the tax amounted to an average of more than $5,000,000 a month. In contrast, June, 1940, was the first month ever to top the $5,000,000 mark and was the only month during the year 1940 to reach such a total.

The income from this source for the first half of the current year was $2,835,299.52, or 10.35 per cent higher than for the same period of the previous year.

On the basis of the distribution of 176,368,300 gallons of gasoline last month, the tax amounted to $5,291,049, or $29,852.30 more than for June, 1940. The June total was below the $5,623,772.97 tax reported for May, 1941.

Continental, Sunset Drill Turnbull Canyon

Because of the hard digging, slow progress is reported from the two wells drilling in the Turnbull Canyon section of the Puente Hills. Continental Oil Co., in sec. 13,2-11, is down 2680 ft. while Sunset Oil Co. in sec. 11,2-11 is just past 2000 ft.

Engineering, Technology, latest news—twice a month in California Oil World.

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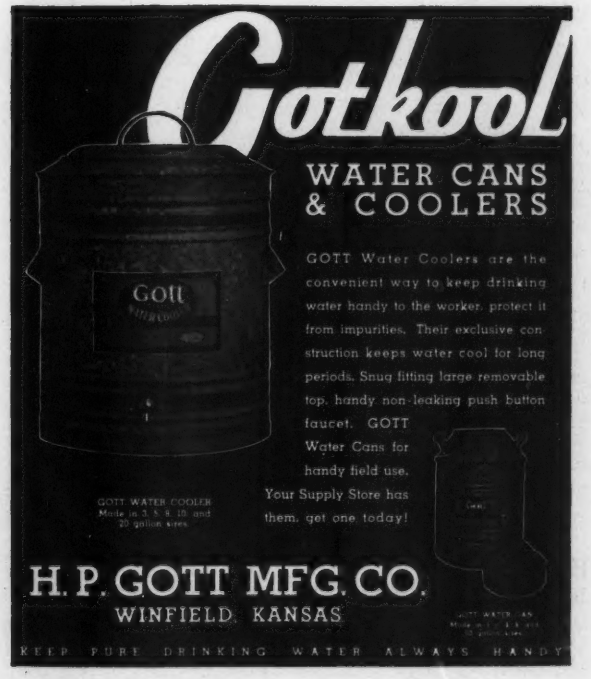
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San Joaquin Valley

Canal Deep Test Now Under Way

Shell Oil Co.'s long awaited deep test within the present producing limits of the Canal field is at last under way. The current driller, KCL No. B-44-14 located in sec. 14, 30-25, was last reported at 4900 ft. The well will attempt completion from the Vedder zone, a deep sand productive in other central Valley fields, but untested in this area. The current production within the field comes from the Stevens zone which also is productive at Greeley where the Vedder has been found saturated. Competent engineers have long credited the area with an excellent chance at multiple zone production.

Shallow Gas Zone Shows Much Kick

Richfield Oil Corp.'s Gas test, KCL No. 1-G-4 in sec. 4, 31-25 at Coles Levee, showed plenty of kick when it blew out from 5032 ft. However since the hole was uncased and the sands reasonably soft the well sanded up after only an hour and a half display. Oil Well Drilling Co., contractors on the job, are at present cleaning out to resume.

Richfield Oil Corp. has completed KCL No. A-45-28 flowing an 800 bbl. rate from 9376 ft. Beaned back from the open flow, the well was last reported making 166 bbls. of clean 32.6 gravity oil through a 10/64 in. orifice. The company is at present operating 4 strings within the field. Ohio Oil Co., Standard Oil Co. and Union Oil Co. are each operating only one string in this once super active field.

Shell Oil To Drill New Raisin City Well

One location east of its discovery well in the southwest quarter of sec. 18,15-18 of Fresno county, Shell Oil Co. is preparing to drill Properties Inc. No. 28-18 in an effort to produce the black oil sand taken in its second well, Santa Ana & Fresno Land No. 1-19, one location south of the initial well.

Last production from the second well was given as 160 bbls. of 22 gravity oil cutting 10.0% through a 10/64 in. bean. The flow, marking 370 lbs. tubing pressure and 1690 lbs. casing pressure, was obtained with only 39,000 cu. ft. of gas. This productive horizon is open from the shoe of 7 in. casing at 5022 ft. to bottom at 5049 ft. and produces considerably more fluid than the gas cap sands open in the discovery well. The upper gas sand interval, produced in the first well, is behind pipe in the second test.

Southwest of the Raisin City production, in sec. 34,16-17, Bell & Loffland spudded Amerada Pet. Corp.'s deep test, Clover No. 31-34, which was last reported drilling near 1500 ft.

A little more than six miles to the east, near the Railroad Station at Burrel, General Petroleum Corp.'s Burrel No. 1, in sec. 2,17-18, is drilling in shale at 6965 ft. No showings have been reported below 6259 ft.

SAN JOAQUIN VALLEY WILDCATS

Area	Well	No.	Section	Depth	Status
	Fresno County				
Cantua Creek	Seaboard Oil Corp., Hagood	2	6, 17-13	4136	Drilling
Jacalitos Hills	Wilshire Annex Oil Co.	33-26E	26, 21-15		Rigging up
Panoche Creek	Richfield Oil Corp., Stone-Bragg	1	33, 13-12	2690	Drilling
Raisin City	Amerada Pet. Corp. Clover	31-34	34, 16-17	1428	Drilling
	Gen. Pet. Corp., Burrel	1	2, 17-18	6965	Drilling
	Shell Oil Co., Inc., Ppties, Inc.	28-18	18, 15-18		Grade
	Kern County				
Belridge—South	Section 27 Oil Co., Aslin	1	27, 28-22	810	Reaming
	Sentinel Oil Co.	1	10, 28-20	3902	Idle
Buttonwillow	The Texas Co., S. P.	47-15	15, 28-24	12138	Suspended
Devils Den	Herzog, R. D., Le Baron	5	24, 25-18	357	Drilling
	Herzog, R. D., Marine	30	26, 25-18	215	Idle
	Herzog, R. D., McKay	1	26, 25-18	453	Idle
	Herzog, R. D., Marine	B-1	26, 25-18	711	Stdg. cem.
	Miesse & McCabe, Jacquelyn	1	26, 25-18	312	Bailing
		2	26, 25-18		Location
Grapevine	Kern Line Oil Co.	1	19, 11-19	8390	Testing
	Richfield Oil Corp., Tejon	2	19, 11-18	4966	Abandoned
Greeley—West	Superior Oil Co., KCL	13	18, 29-25	12485	Drilling
Lost Hills	Tide Water Assoc. Oil Co., Isolis	46	16, 27-21	6545	May abandon
McClung	Macrate, A. N., Haberfelde	1	32, 29-26	6218	Drilling
	Ohio Oil Co., KCL	G-1	36, 29-26	10551	Drilling
Mountain View	Richfield Oil Corp., West Mt. View	1	16, 30-28		Prep. to spud
Mt. Poso	Signal O. & G. Co. & Dwight Vedder, V-S	1	32, 27-28		Rig
Paloma	Union Oil Co., Morgan	81	14, 32-26	8788	Drilling
	Western Gulf Oil Co., Symons	12-7	7, 32-27		Foundation
Richgrove	Borget, A. J., Kendall	1	16, 25-27	1710	Idle
	Dawson, A. E.,	1	3, 25-27	2525	Drilling
	Shell Oil Co., Smith	56-X-11	11, 26-27		Location
	Tide Water Assoc. Oil Co., Quinn	46	8, 25-27	1660	Drilling
	The Texas Co., G & L	77-1	1, 24-26	1427	Drilling
Round Mt.	Bolsa Oil Co., Howell	2	32, 28-29		Location
	Spartan Oil Co., Hiatt	1	32, 28-29	2125	Suspended
Shafter	Continental Oil Co., KCL	C-2	35, 27-24	12600	Drilling
Union Avenue	Hancock Oil Co., Jewett Comm.	1	8, 30-28	1930	Drilling
	Kings County				
Pyramid Hills	Phillips Oil Prod. Co.	1	13, 24-18		Rig
	Pyramid Prod. Co., Spreckles	2	16, 24-18	1865	May abandon
Reef Ridge	Blair Oil Co., Blair	1-B	24, 23-16	381	Drilling
	Easterbrooks, S. F.	1	11, 23-26	715	Idle
	Tulare County				
Trico	Trico Oil & Gas Co., Seymour-Bolz	1	20, 24-23		Rig

where a short formation test recovered only mud and water.

West Greeley Well Now Deep in Section

Superior Oil Co.'s KCL No. 13, deep test in sec. 18-29-25, several miles west of the Greeley field, has excited no further interest because of reported showings, but is again becoming interesting because of its depth. Now reported at 12,485 ft. in what is thought to be hard shale, the well is coring ahead. Already below anything drilled in the immediate area, the test will be important geologically even though it proves to be non-productive.

McClung Wildcat In Barren Vedder

Ohio Oil Co.'s KCL No. G-1, located in sec. 36,29-26 southeast of the Greeley field, is bottomed in gray Vedder sand at 10,551 ft. This zone, deepest producing horizon in the central Valley, was entered at 10,512 ft. while the other deep horizon, the Rio Bravo sand, was found barren at 10,475 ft.

Located a mile and a half northeast of the projected axis of the field, the try found the objective deep zones materially higher than in those drilled more nearly on the line and which picked up the Vedder from a little below 11,000 ft. to more than 12,000 ft.

Due south of the Greeley field, and one location northwest of the center of sec. 32,29-26, Taft Well Drilling Co. is drilling A, N, Macrate & Sons Haberfelde No. 1 below 6200 ft. in search of the deep sands productive elsewhere in the central section of the Valley.

Tide Water Loses Lost Hills Hole

Tide Water Associated Oil Co. is considering abandonment of its 6545 ft. Islais No. 46 in the Lost Hills Area. Located in sec. 16,27-21, off the south tip of the field, the well had reached an unpromising 6545 ft. when drill pipe, drill collar and core barrel stuck at 5500 ft. while running in after the fish, the fishing string stuck at 2540 ft. necessitating a secondary fishing job. At last report, the fish had been recovered to 2245 ft. when the balance of the fish dropped down the hole—the company may abandon!

Joint Operators Plan Mount Poso Outpost

After finding small Vedder zone production southeast of the Mt. Poso field, Signal Oil & Gas Co. & Dwight G. Vedder have moved to the southeast and built rig to drill V-S No. 1 as another outpost in the center of the northeast quarter of sec. 32-27-28.

The initial well, V-S Glide No. 1, near the south quarter corner of sec. 29,27-28, was finished last fall for 118 bbls. of 16 gravity oil cutting 15.0% from 2314 ft. but water broke in making the well non-commercial. Top of the Vedder was found at 2300 ft.

In the proved portion of the field, Ring Oil Co. is finishing Bohn No. 6 in sec. 32, 26-28 and plans two new wells. The Texas Co. will drill Alta Vedder No. 13 in the midst of production on sec. 4,27-28. Vedder Pet. Corp. is attempting completion of Lambert No. 21-3 in sec. 21,26-28 while last production figures for Dwight G. Vedder's B.N.B. No. 5 in sec. 32,26-28 were given as 400 bbls. of clean 15.6 gravity oil. A. T. Yeager, Union Oil Co. and Shell Oil Co. also plan immediate drilling.

Kern Front Area To Get Deep Try

South of the Kern Front proved limits, Richfield Oil Corp. plans to drill Kramer No. 1 as a deep test in the northwest quarter of sec. 34,-28-27. It is reported that the company has blocked up considerable acreage and plans to drill to production or basement in this east Valley site.

H. C. Morton Drills Blackwells Corner

Employing Hall-Baker's light portable outfit, H. C. Morton is starting a test well in sec. 30,26-19 near Blackwell's Corner. The site is a little more than two miles southwest of Amerada Pet. Corp.'s now abandoned Beer No. 4 which was completed for a diminishing amount

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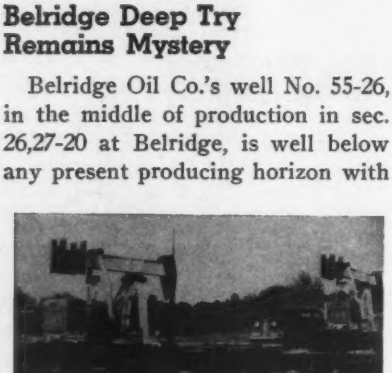
of 25 gravity oil in 1937. This well initialled an estimated 25 bbls. daily and dwindled to less than ten bbls. in a few weeks. The well achieved production of sorts, however, which is more than subsequent tests of the area have been able to accomplish.

Belridge Deep Try Remains Mystery

Belridge Oil Co.'s well No. 55-26, in the middle of production in sec. 26,27-20 at Belridge, is well below any present producing horizon with depth estimated at 9771 ft. Drilled to test the underlying formations in this already prolific field, the well's showings, if any, have been carefully kept secret. With 8⅝ in. casing cemented at 7775 ft. and 6⅝ in. cemented at an unknown point, the well is reported to have flowed 2500 bbls. of salt water showing a trace of oil on a formation test to bottom, popularly supposed to be in Eocene at 9771 ft. after finding the zone at 9545 ft.

The well may not be written off, however, since it is drilled beneath proved sands with the first deep zone found at 7625 ft. and the second at 7780 ft. These horizons may be utilized on the way out of the hole.



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Fresno Co. "Cats" Remaining Active

Most northerly of the current Fresno County development is Richfield Oil Corp.'s Panoche Creek try, Stone-Bragg No. 1 near the north quarter corner of sec. 33,13-12, east of the city of Mendota and northwest of the condensate production found by the Jergins Oil Co. on the Cheney Ranch. Designated as a test of both Eocene and Cretaceous horizons, the well is drilling at 2700 ft. under contract to Bell & Loffland.

At the westerly limits of the county, in sec. 6,17-13, Seaboard Oil Corp.'s Hagood No. 2 is drilling in Cretaceous brown shale at 4136 ft. Top of the Moreno was placed at 3064 ft. Following the trend of current drilling practices, this well is also a contract job with Bender Drilling Co. doing the work.

In the Jacalitos Hills area, south of the Coalinga fields and west of the north tip of the Kettleman North Dome field, Kern Drilling Co. is rigging up to drill Wilshire Annex Oil Co.'s wildcat No. 33-26E in sec. 26,21-15.

Spartan Oil Fails South of Round Mt.

Spartan Oil Co. deepened its Hiatt No. 1 to 2125 ft. and ostensibly abandoned in gray sand. Located in sec. 32, 28-29, the hole stood idle for about a year at 2000 ft.

Formation Test Fails On P .ena Vista Hills Try

Honolulu Oil Corp.'s phenomenal 14,622 ft. No. 25-P in the Buena Vista Hills proved disappointing when a formation tester packer failed on a trial of the interval 8593-10,964 ft. The hole has been bridged at 8015 ft. to cement a blank liner for further tests. These tests are more a matter of routine than expectancy since little encouragement was found on the way down. The well was drilled as a geologic exploration and had penetrated to within a few hundred feet of the world's record using light electric equipment when stuck drill pipe forced suspension of hole making.

Richgrove Wildcat Finds Sands Barren

A. E. Dawson, drilling in sec. 3, 25-27 in the Richgrove-Jasmine area, found the Pyramid Hills sands barren at 2245 ft. and is reported to have bottomed in hard rock at 2525 ft. The Walker zone, which has showed a little oil in nearby wells, was dry at this location.

Believing that the long-sought field lies to the north in Tulare county, The Texas Co. is drilling Graham & Loftus No. 77-1 below 1600 ft. in sec. 1, 24-26. Tide Water Associated Oil Co.'s geologists, however, still have faith in the Quinn Ranch and are drilling No. 46 at 1700 ft. in sec. 8, 25-27.

Two Wells Drilling South of Bakersfield

Hoping to find new production in the fault system between Union Avenue's lone producer and the Mountain View field, Hancock Oil Co. and Richfield Oil Corp. are drilling exploration wells. The Hancock project, located in sec. 8, 30-28 southeast of the Union Avenue school, is below 2500 ft. while Richfield's West Mountain View No. 1 in sec. 16 has just set surface casing.

Coastal District

Cat Canyon Area Remains Active

Though one well was recently abandoned, The Cat Canyon district remains one of the most interesting in the state. North of the two wells already producing from the Monterey west of old West Cat Canyon field, Standard Oil Co. seems assured of a producer in Los Flores No. 2. When bottomed at 6425 ft., a water shut-off test on casing cemented at 6262 ft. recovered 100 ft. of mud, 900 ft. of light, gassy oil and 4500 ft of heavier oil. When last reported, the well was drilling in cherty shale showing oil at 6465 ft. and was expected to be completed soon.

Approximately 1000 ft. north and 1000 ft. west of the southeast corner of sec, 27, 9-33 and east of No. 11, Union Oil Co. is preparing to drill Bell No. 12 to the Miocene zone. Standard's Los Flores No. 2 and the new Union well will go far towards clarifying the now obscure structural picture.

Further light on subsurface conditions in the West Cat Canyon area will be shed by Alphonzo E. Bell Corp.'s Gilmore No. 1 which is now below 3000 ft. on its way toward making a deep test near the northerly limits of Sisquoc production in the old field. The project is located in sec. 23,9-33, approximately a mile northeast of Los Flores No. 2.

O. C. Field Gasoline Corp. was unsuccessful in seeking a new Sisquoc accumulation in sec. 24,9-33, a mile northwesterly from the limits of production in the East Cat Canyon pool. Few showings were found in Palmer-Stendel No. 24-1 and the hole was abandoned in volcanic ash at 3363 ft.

Bel-Air Finishes Santa Maria Outpost

Flowing through the pump at an initial rate of 800 bbls. a day, Bel-Air Oil Co.'s Twitchell No. 1 came in to extend limits of the Santa Maria Valley field slightly to the south in sec. 35,10-34. After three days, the agitated flow increased to 1000 bbls. daily of 14 gravity oil and the cut appeared to be cleaning up satisfactorily. A 515 ft. interval above bottom at 5375 ft. is open to production.

In the long-proved section 25, R. R. Bush Oil Co. and Hancock Oil Co. brought in Rosenblum No. 3 from 4609 ft. flowing 15 gravity oil at the rate of 120 bbls. per hour. Kern Drilling Co., contractors, are moving their equipment to California Lands No. 4 in sec. 30,10-33.

C. C. M. O. to Re-test Deep Rincon Well

After re-drilling Hobson No. C-9 to 9300 ft., 37 ft. above the original bottom, Chanslor, Canfield Midway Oil Co. is preparing to again try for production. Mechanical difficulties beset the well on the first series of tests necessitating the redrill job. The company is drilling Hobson No. C-3 below 8200 ft. as a second deep test of the Rincon field.

COASTAL COUNTIES WILDCATS

Area	Well	No.	Section	Depth	Status
	Santa Barbara County				
Cat Canyon	Alphonzo E. Bell Corp., Gilmore	1	23, 9-33	2515	Drilling
	O. C. Field Gasoline Co., Palmer Stendel	24–1	24, 9-33	3363	Converted to Water Well
Gato Ridge	O. C. Field Gas. Co., Continental	4	4, 8-32		Location
Lompoc	O. C. Field Gasoline Co., Carreaga	1	31, 8-33		Rigging up
	San Luis Obispo County				
Huasna	Tex Harvey Oil Corp., Gilmore Comm.	2	11, 32-14	5756	Drilling
	Ventura County				
Bardsdale	Cook, Osmere, King	1	33, 4-19	125	Idle
	Hopland Oil Co.	1	1, 3-19	2923	Idle
	Palma Oil Co.	1	8, 3-19	2865	Idle
	San Marino Oil Co., Capitol Crude	1	7, 3-19	1850	Flowing
	San Marino Oil Co., Capitol Crude	3	7, 3-19		Location
Camulos	Western Gulf Oil Co., Rubel	1	27, 4-18	425	Drilling
Conejo	Sycamore Oil Co., Boylan	1	23, 1-20	375	Drilling
Ojai	Oil Prod. Maintenance, Inc. Byhara	1	12, 4-22	620	Idle
	Richfield Oil Corp., Bard	44	13, 4-22		Location
Piru	Havlin & Pottenger, Alice	1	33, 4-18	1715	Idle
	Glen Ogles Oil Co., Lisk	1	21, 5-18		Grading
Sespe	Inter Counties Fuel Co.	1A	22, 4-19	1125	Drilling
	McCaslin, W. E., Burson	1	19, 4-19	2039	Reaming
South Mountain	Comstock Pet. Co.	1	17, 3-29	2250	Idle
	Loose, E. H. & Dietzmann, J.	1	17, 3-20	210	Drilling
	South Mountain Oil Co.	1	10, 3-20	2750	Rigging pump
Timber Canyon	Crude Oils, Inc., West	1	19, 4-20	865	Drilling

NORTHERN COUNTIES WILDCATS

County	Well	No.	Section	Depth	Status
Alameda	Shell Oil Co., Nissen	1	7, 2s-3e	500	Drilling
Colusa	Pacific National Pet. Corp.	1	17, 17n-4w		Rig
Glenn	Holly Sugar Co.	1	32, 22n-1w	4349	Abandoned
Madera	Shell Oil Co., Chowchilla Farms	74–9	9, 11s-14e		Rigging up
Mendocino	Keyt, N. F.	1	3, 12n-17w	1225	Drilling
Monterey	Loma Grande Oil Co., Corey	1	23, 24s-10e	3695	Fishing D. P.
Sacramento	Amerada Pet. Corp., F & C	1	4, 6n-3e	5489	Drilling
	Standard Oil Co., Prod. Prpties	1	23, 3n-3e		Foundation
San Joaquin	Standard Oil Co., Blewett	3	23, 3s-6e		Location
	Standard Oil Co., Mabry	2	31, 2n-5e	4685	Drilling
Solano	Standard Oil Co., Suisun Comm.	1	36, 4n-2w	3421	Drilling
Sonoma	Trico Oil & Gas Co., Miller	1	30, 5n-6w		Location
Yolo	Standard Oil Co., Tippetts	1–1	15, 12n-3w	990	Drilling
Yuba	Wright, L. G., Cox	1	18, 14n-5e	1795	Idle

NINETEENERS Charlie Schneider, Paul Broxson, Dick Townley, Earle Jorgensen, Fred Currie, John Lucas, Bill De Ridder and Holly Hayter gather around the water hole to shoot fish.

Nineteeners Beat Snakes, Eat Steaks, Treat Aches at Earle Jorgensen's

By Jim MacDonald
"Big Shot"

If your leases have been overrun with a plague of frightened snakes recently, you can thank The NINETEENERS, that select group of incompetent oil men that monthly rips up the fairways of some of our finest Southern California golf courses.

The particular snakes that moved in on your fields are probably frantic fugitives from the Annandale Golf Club where on July 26, The NINETEENERS, as guests of Earle Jorgensen, well-known California steel man, assembled in solemn council to play what they laughingly called golf but more experienced observers call murder. After an afternoon spent in wildly beating the out-of-bounds underbrush, the group journeyed on over to Earle Jorgensen's beautiful Ken Den ranch in Flintridge for a barbecue stag supper and other divertissements.

The first catastrophe occurred when "King Tut" Tuttle of Standard Oil Company and Hugh Glen of Emsco scraped out a musical disaster on their violin and guitar, thus driving the rest of the party in a frenzied rush to the stables and swimming pool. At the pool, Ward "Swims-Like-A-Rock" Blodget, independent operator, and "Chappy" Chapman of Petroleum Equipment set themselves up as lifeguards while "Buck" Mahaffy of Macco Construction Co. and Leonard Price of A. W. Buchanan played mermaids. The deep diving contest wound up in a tie between Lev Sacre of Timken Steel and Gil Nesheim of Allied Supply. Neither would come up first so Host Jorgensen finally had to drain the pool to find them.

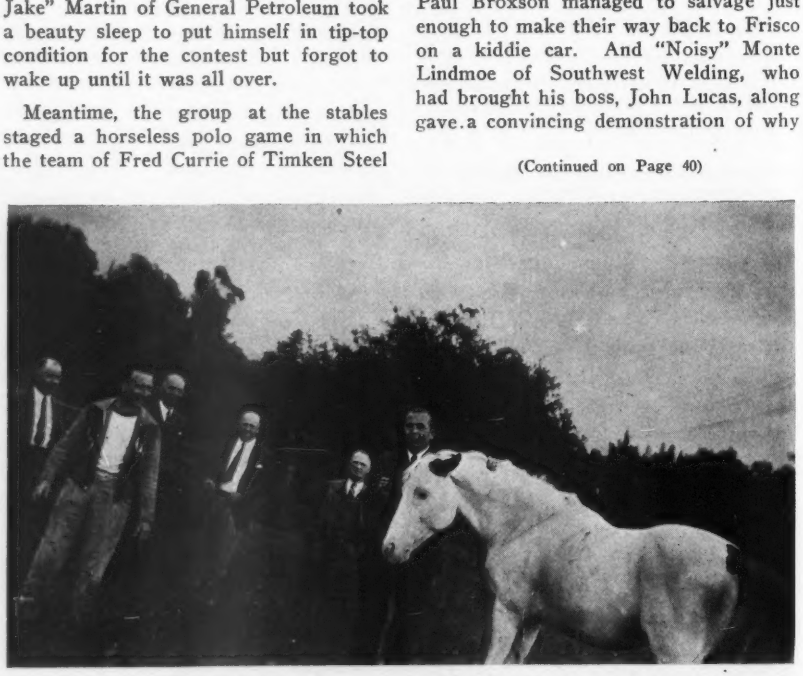
In an impromptu bathing beauty contest to determine which oil men you would rather be cast away with on a desert isle—or Hedy Lamarr—Gordon "Playboy" Tunnell of Allied Supply finished head and shoulders over the rest of the field with Bill Brooks of Petroleum Equipment, Hans Ross of Baash-Ross and Jim "Big-Shot" MacDonald of Chain Belt finishing in that order. "Smiling Jake" Martin of General Petroleum took a beauty sleep to put himself in tip-top condition for the contest but forgot to wake up until it was all over.

Meantime, the group at the stables staged a horseless polo game in which the team of Fred Currie of Timken Steel and "Holly" Hayter of Tide Water Associated Oil opposed "Dutch" Zwerneman of Axelson and Jay Perrin of Towelsaver. Currie and Hayter won the match in a breeze when Zwerneman developed a leaky valve seat and Perrin tossed in the towel (paper), thus practically wiping out "Seabiscuit" Townley of C. F. Braun and Joe Aderhold of Allied Supply, who had busied themselves making book on the contest.

While the steaks were cooking, Percy "Twinkle Toes" Hayes of Universal Consolidated, the CHAMP of the NINETEENERS' divot diggers, got the hot foot and broke into a toe dance that would put even Pavalova to shame. All of which drove the metal combine—"Up-like-a-Bird" Tom Bell of Jones & Laughlin Steel, Bill De Ridder of Western Metals and Dick Whelan of Youngstown Steel—into a huddle of competitive story-swapping on the relative merits of the various toe (?) dancers they had known. As usual, Tom Bell had known more dancers—or at least, knew more stories about dancers—than any of the rest.

Before the evening was over—but not until after "Captain" Barneson Beck of General Petroleum had shown the boys a trick or two in the pitch game—someone broke out the inevitable deck of evil pasteboards (cards to you). In the dog-eat-dog scramble that followed, Charlie Schneider of Tide Water Associated, who had flown down from San Francisco especially for the event, and his guest Paul Broxson managed to salvage just enough to make their way back to Frisco on a kiddie car. And "Noisy" Monte Lindmoe of Southwest Welding, who had brought his boss, John Lucas, along gave a convincing demonstration of why

(Continued on Page 40)



A moment after this shot was taken the animal wiggled its ears and the "fearless" oilmen in the background—Percy Hayes, Earle Jorgensen, Charlie Schneider, Ward Blodget, and Tom Bell—wildly scrambled into the underbrush. Dick Townley (right), petrified by his own pipe, never even knew what he was doing.

First Row—left to right: Dwight C. Roberts, regional manager, Houston; R. C. White, mechanic, Houston; H. A. Wesner, office manager, Houston; George A. Smith, attorney, Busser and Harding, Philadelphia; R. S. Hyer, district manager, Houston. Second Row—left to right: Miss Clyde Anglin, temporary stenographer, Houston; Roland Ring, chief engineer; Miss Sarah Alsup, stenographer-clerk; Miss Charlotte Lewis, stenographer-clerk; John Kavsh, clerk; Wm. G. B. Morrison, Jr., junior engineer. Third Row—left to right: E. L. Riley, shop and field assistant, Houston; G. G. Brown, clerk; S. O. Butler, gyro mechanic, and W. C. Robins, technical helper.

Sperry-Sun Awards Service Emblems

A meeting was held at the Houston Office of the Sperry-Sun Well Surveying Co. in July, where ten year Service Emblems were presented to several employees by G. L. Kothny, vice president and general manager of the company.

Mr. Kothny delivered a brief address in which he outlined the history of the company and said that, as a subsidiary of the Sun Oil Co., Sperry-Sun was adopting the policy of recognizing services rendered by employees of ten years' standing by presenting them with Service Emblems, which has been the practice of the Sun Oil Co. for many years. He pointed out that the Service Emblems were being awarded not merely for ten years of service, but for the loyalty and efficiency of those employees who had spent these years with Sperry-Sun.

The Emblems are of gold and bear the insignia of Sperry-Sun: a spinning gyroscope against the background of a rising sun; as well as the words: "10 Years, Service, Loyalty, Sperry-Sun."

Ten year emblems were presented to the following:

A. B. Palmer, district manager, Lafayette, La.; R. S. Hyer, district manager, Houston, Texas; H. A. Wesner, office manager, Houston; R. C. White, mechanic, Houston.

A Ten Year Emblem was also presented to George A. Smith of the Philadelphia law firm, Busser and Harding, who, while not a Sperry-Sun employee, has lent invaluable aid to the company since its inception in handling the legal phases of all patent matters and has contributed engineering ideas as well.

W. H. Emerson, district manager at Long Beach, Calif., received a Ten Year Emblem, but this was forwarded to him by mail since he could not be present at the Houston meeting.

All employees present at the meeting who have not yet served ten years with the company look forward to the day when they, too, will receive their ten year service pins.

The picture of the presentation ceremonies shows Mr. Kothny presenting the first Emblem to Mr. Palmer.

Chain Belt Co. Advances J. W. Snavely

Chain Belt Co. of Milwaukee has just announced that J. Walter Snavely, district manager in the Houston territory for seven years, has returned to the

J. W. Snavely

Sales Department of the Conveying and Engineering Products Division at Milwaukee. Mr. Snavely graduated from the University of Wisconsin and entered the employ of Chain Belt Co. as a student apprentice in the year 1927. The next three years, he spent in the factory receiving training and experience in the various manufacturing departments.

W. A. Pitts, formerly representative in Oklahoma City, has been appointed district manager of oil well sales at Houston. Mr. Pitts has worked in practically every oil field in the Mid-Continent and Gulf Coast area for the past twenty years. From 1926 to 1934 he was also in the oil fields in California. He has been the Chain Belt Co. Oklahoma City representative in the oil fields since 1936.

George Hunt has been appointed district manager of industrial sales with headquarters at Dallas, Texas. Previous to his joining Chain Belt Co. organization, Mr. Hunt was an engineer for one of the largest paper mills in the South.

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Oil Men's Calendar

Calif. Natural Gasoline Association. **Los Angeles Chapter**—Meets 1st Thursday Each Month, Barker Bros. Bldg., Los Angeles—Dinner at 6:00 (Optional). **Taft Chapter**—Meets Third Thursday Each Month.

American Society of Mechanical Engineers—**Los Angeles Section**—Meets 2nd Thursday Each Month—Barker Bros. Bldg., Los Angeles. Dinner at 6:30 (Optional).

August

19-21—National Association of Petroleum Retailers, Chicago, Ill.

September

8-12—American Chemical Society, Chalfonte-Haddon Hall, Atlantic City, N. J.

17-19—National Petroleum Assn., 39th Annual Meeting, Hotel Traymore, Atlantic City.

25-26—Society of Automotive Engineers, National Tractor Meeting, Schroeder Hotel, Milwaukee, Wis.

29-30—National Lubricating Grease Institute, Ninth Annual Meeting, Stevens Hotel, Chicago, Ill.

October

6-8—Twenty-eighth National Foreign Trade Convention, Hotel Pennsylvania, New York.

6-9—National Safety Congress, Stevens Hotel, Chicago, Ill.

16-17—American Association of Petroleum Geologists, Pacific Section, Ambassador Hotel, **Los Angeles, Calif.**

16-18—American Institute of Mining & Metallurgical Engineers, Petroleum Division, Dallas, Tex.

20-22—Independent Pet. Assn. of America, 12th Annual Meeting, Tulsa, Okla.

30-31—American Institute of Mining & Metallurgical Engineers, Petroleum Division, **Los Angeles, Calif.**

30-Nov. 1—Society of Automotive Engineers, National Aircraft Production Meeting, Biltmore Hotel, **Los Angeles, Calif.**

31—California Natural Gasoline Assn., **Los Angeles, Calif.**

November

3-7—American Petroleum Institute, 22nd Annual Meeting, St. Francis and Palace Hotels, **San Francisco, Calif.**

December

3—New Mexico Oil & Gas Assn., Artesia, New Mexico.

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his expense account runs so high every month.

One of the saddest men in the whole crowd was Harold "Collector" Davis of Richfield who usually acts as fee collector for the NINETEENERS. Since this affair was staged entirely by Mr. Jorgensen himself, there were no fees to be collected from the members—a disappointment that will no doubt warp Davis' mind the rest of his life—if it can be further warped.

But even sadder were those NINETEENERS who were unable to convince the little lady that they were going out to sit up with a sick friend . . . and so never got to the party. Among these were such notable "Dog Housers" as Doc Hayes of Bell & Loffland, Olin Magary of Petroleum Equipment, Bill Klein of Rocky Mountain Drilling, Chuck Flannery of Industrial Engineering, Jerry O'Leary of Chapman Valve and Hal Lindquist of Vitachrome.

These fellows certainly missed something because Host Jorgensen did a marvelous job in putting on this steak feed for the hungry NINETEENERS. Everybody had a swell time—everybody, that is, except those fugitive snakes that are still troubling the outlying lease holders.

Huasna Wildcat Seeking Vaqueros

Hoping to find oil in the Vaqueros formation, "Tex" Harvey Oil Corp. is drilling Gilmore Community No. 2 below 5750 ft. in the Huasna country of San Luis Obispo county. Location of the well is in sec, 11,32-14.